Linguistik Aktuell Linguistics Today 153

Adjectives

Formal analyses in syntax and semantics

Edited by

Patricia Cabredo Hofherr
Ora Matushansky

John Benjamins Publishing Company

Adjectives

Linguistik Aktuell/Linguistics Today (LA)

Linguistik Aktuell/Linguistics Today (LA) provides a platform for original monograph studies into synchronic and diachronic linguistics. Studies in LA confront empirical and theoretical problems as these are currently discussed in syntax, semantics, morphology, phonology, and systematic pragmatics with the aim to establish robust empirical generalizations within a universalistic perspective.

Volume 153

Adjectives. Formal analyses in syntax and semantics
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Amsterdam / Philadelphia

∞™ The paper used in this publication meets the minimum requirements of American National Standard for Information Sciences – Permanence of Paper for Printed Library Materials, ANSI z39.48-1984.

Library of Congress Cataloging-in-Publication Data

Adjectives. Formal analyses in syntax and semantics / edited by Patricia Cabredo Hofherr, Ora Matushansky.

p. cm. (Linguistik Aktuell/Linguistics Today, ISSN 0166-0829 ; v. 153)

Includes bibliographical references and index.

1. English language--Adjective. 2. English language--Syntax. 3. Semantics. I. Hoffher, Patricia Cabredo, 1970- II. Matushansky, Ora.

PE1241.A35 2010

415'.5--dc22 2009053860

ISBN 978 90 272 5536 5 (Hb ; alk. paper)

ISBN 978 90 272 8834 9 (Eb)

John Benjamins Publishing Co. · P.O. Box 36224 · 1020 ME Amsterdam · The Netherlands

John Benjamins North America · P.O. Box 27519 · Philadelphia PA 19118-0519 · USA

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Adjectives

An introduction

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The contributions in the present volume deal with a variety of issues in the analysis of the syntax and semantics of adjectives.[1] Compared to the lexical categories of nouns and verbs, adjectives have received little attention in the linguistic literature. In the present introduction I will give an overview of some of the central issues in the study of adjectives and put the issues addressed by the papers in this volume into this wider context.

The first section reviews the criteria that have been proposed to distinguish adjectives as a word class and discusses some cross-linguistic variation observed with respect to these criteria. The second section sketches some issues in the semantics of adjectives. The third section gives a summary of the main issues in the syntax of adjectives and of the syntactic analyses proposed for the attributive and predicative uses of adjectives. The fourth section presents the papers collected in this volume.

1. Adjectives as a word-class

In a typological perspective it is crucial to have criteria that allow us to distinguish nouns and adjectives as well as different types of adjectives. Identifying nouns, verbs and adjectives cross-linguistically is, however, a difficult enterprise, with adjectives being particularly elusive. In earlier research on adjectives as a word class it was claimed that some languages do not have an adjective class at all (Dixon 1977;

1. I gratefully acknowledge the support of the Laboratoire *Structures Formelles du Langage* (UMR7023 CNRS-Paris 8), the Research project *Architecture de la Phrase* and of the *Fédération Typologie et universaux linguistiques* (CNRS FR 2559). I am grateful to Werner Abraham, Matthew Baerman, Sabrina Bendjaballah, Dunstan Brown, Guglielmo Cinque, Brenda Laca and Isabelle Roy for comments on a previous version of this paper. All remaining errors are my responsibility.

Schachter 1985:13–20) and that predicates typically corresponding to adjectives in other languages are either nouns or verbs in these languages.[2]

More recent research on adjectives as a word class, however, has defended the idea that an adjective class can be identified in all languages. The detailed studies of adjectives in Baker (2003:238–63) and Dixon (2004:14–28) have both given evidence for a lexical category distinct from nouns and verbs in languages that had been analysed as lacking an adjective class. The criteria invoked by Baker and Dixon to set apart a class of adjectives include the following:

(1) a. Adjectives allow direct modification of nouns. (Baker 2003:252–6, Dixon 2004:19–20)
b. Adjectives differ from other predicates in the comparative construction. (Dixon 2004:11,21)
c. Adjectives do not have their own gender, they agree in gender with the modified noun (Baker 2003:247, Dixon 2004:23)
d. Adjectives can appear without a preposition in resultative predications. (Baker 2003:219–30)

As Baker and Dixon point out, the criteria proposed need not distinguish adjectives from verbs or nouns in all languages, as independent cross-linguistic differences can interfere with the criteria.

Criterion (1a), for example, is not applicable in languages like Slave (Athapaskan) that do not allow direct modification of the noun by the adjective (Baker 2003:194 citing Rice 1989).

In order to apply criterion (1b), comparatives in a given language also have to be analysed in detail. As Dixon (2004: 26) points out, comparative constructions may but need not distinguish adjectives from nouns (adjectives, but not nouns, admit comparatives in Russian, Finnish and Hungarian, both adjectives and nouns can enter the comparative construction in Portuguese, Sanskrit and Dyirbal). This seems to be a special case of the more general observation that not all degree words select adjectives exclusively (see Baker 2003: 212–18 for discussion). While *how*, *too*, *so* and *as* in English are limited to adjectives (like the synthetic comparative), semantically similar expressions such as *more*, *less* and *enough* can also combine with other expressions such as mass nouns (*more/less/enough water*) and verbs (*I trust her more/less/enough*). The distinction between the two types of degree expressions has other grammatical

2. See e.g. McCawley (1992) for an analysis of Mandarin Chinese adjectives as intransitive verbs (but see Paul this volume for a different analysis), and the discussion in Baker (2003: 173–188) for languages that have been analysed as neutralising the noun-adjective distinction (Huallaga Quechua, Classical Nahuatl and Greenlandic Eskimo).

reflexes in English: *more/less/enough* can combine directly with the predicate pronoun *so* while degree heads like *how/too/so/as* require a dummy *much* (Corver 1997).

(2) a. Mary is intelligent and Sue is more so.
b. Mary is intelligent, in fact she is too much so.
b. *Mary is intelligent, in fact she is too so.

The application of the criterion in (1b) therefore has to be underpinned by a detailed examination of the degree words in a given language (see e.g. Doetjes 2008 for a comparative study of degree expressions in French and English).

Finally, there are languages such as French, Hindi, Russian[3] and Chichewa that do allow only PP-resultative predicates – since adjectival resultative predicates are excluded independently in these languages, criterion (1d) is rendered inapplicable (see Baker 2003:226).

Summarising, it seems fair to say that the criteria in (1) are flawed since they are too coarse to properly isolate the characteristic features of adjectives, and therefore other properties of the language can interfere with the behaviour of adjectives on a given criterion. Nevertheless, the criteria provide a useful battery of tests that may help to identify adjectives in a given language.

A heuristic that may be used to approach the task of identifying the potential adjectives in a language is provided by Dixon's study of the semantics covered by adjectives in languages with small adjective inventories. According to Dixon (1977/1982:46–59), small adjective inventories typically include adjectives of dimension (*big, small, long, short, wide*), age (*new, young, old*), value (*good, bad*) colour (*black, white, red*), while only bigger adjective inventories typically also contain adjectives describing physical property (*hard, soft, heavy, wet*), human propensity (*jealous, happy, kind, clever)* and speed *(fast, slow*) (see also Dixon 2004:4).

As adjectives often share properties of either nouns or verbs it is crucial to examine the criteria that allow us to draw the boundary between adjectives and the other two lexical categories for specific languages. The paper by Paul (this volume) examines the relationship between intransitive verbs and adjectives in Mandarin Chinese. Paul argues against the traditional analysis of Mandarin Chinese adjectives as verbs, giving syntactic, semantic and morphological criteria that distinguish two classes of adjectives from intransitive verbs. Two other papers in the present volume examine the relationship between nouns and adjectives: (i) Babby (this volume) argues in detail that Russian long-form adjectives that appear in predicative position have nominal properties and should be analysed as attributive adjectives on an abstract predicative

3. For Russian not admitting the use of adjectives as resultatives see e.g. Spencer & Zaretskaya (1998:3), Strigin & Demjjanov (2001).

noun, and (ii) Borer & Roy (this volume) propose syntactic and semantic criteria to distinguish nominalised adjectives from cases of N-ellipsis (i.e. adjectives modifying a null pronoun *pro*) in English, French and Modern Hebrew.

2. Semantic properties of adjectives

In what follows I will review three central issuesin the semantics of adjectives: gradability, intersectivity and lexical aspect. Gradability and the intersective/non-intersective contrast have been the object of a fair amount of research. The study of aspectual properties of adjectives, on the other hand, is only recently emerging as a focus of interest.

2.1 Gradability

Gradability is often taken to be a prototypical property of adjectives (see e.g. Jackendoff 1977): degree expressions of the type of *too* or *very* combine with adjectives but not with other categories. It has been pointed out, however, that the syntactic behaviour of degree expressions varies cross-linguistically as illustrated here by the degree expressions *too* and *trop* "too" in English and French respectively (see Doetjes et al. 1998, Neeleman et al. 2004, Doetjes 2008):

(3)		French	English	
	a.	**trop** grand	**too** big	(adjective)
	b.	**trop** apprécier	appreciate **too** much	(gradable verb)
	c.	**trop** danser	dance **too** much	(eventive verb)
	d.	**trop** de soupe	**too** much soup	(mass nouns)
	e.	**trop** de livres	**too** many books	(count nouns)
				(Doetjes 2008:123)

As Doetjes points out, the distribution of *too* distinguishes adjectives from other categories in English as only adjectives can combine directly with *too.* In contrast, the French degree expression *trop* – although semantically similar to *too* – does not discriminate between adjectives, verbs and nouns.[4] Gradability therefore seems to be a more general property of a subclass of predicates that are associated with a scale, be they nouns, verbs or adjectives.

4. The *de* appearing with nouns is generally analysed as a case-marker; if this analysis is correct, the difference between *trop* + Adj/ V and *trop* + *de* + N is not due to *trop* distinguishing between adjectives and verbs on the one hand and nouns on the other, but to a general property of nouns that they need case.

Apart from degree expressions, gradable adjectives also admit comparative and superlative formation (e.g. *smaller/smallest*). In some languages adjectives have dedicated comparative and superlative morphological forms that do not apply to other categories:[5,6]

(4) a.

schön	schöner	schönster	(Ge)
beautiful	beautiful-comparative	beautiful-superlative	

b.

green	greener	greenest

However, in the same way as degree expressions do not single out adjectives cross-linguistically (see discussion in Section 1 above), comparative and superlative morphology is not limited to adjectives either (see (5) and the references cited in Dixon 2004).

(5) a.

Muy	**filósofo**	estás,	Sancho, …	(Sp)
Very	philosopher	be-LOC.2SG	Sancho …	

'You are in a very philosophical mood, Sancho…'
(Miguel de Cervantes, translation by J. Rutherford, *The Ingenious Hidalgo Don Quijote de la Mancha*. Penguin Classics, 2001.)

b.

En	este	lugar	del	sur	me	encuentro	con	**el**	**más**
in	this	place	of-DET	south	1SG.DAT	find	with	the	most

escritor	**de**	**nuestros**	**cineastas**	o	con	**el**	**más**	**cineasta**
writer	of	our	filmmakers	or	with	DET	most	filmmaker

de	**nuestros**,	**escritores,**	Gonzálo Suárez.	(Sp)
of	our	writers	Gonzálo Suárez	

'In this place in the south I meet with the one of our filmmakers who is the most like a writer or the one of our writers who is the most like a filmmaker, G.S.' (attested)

---

5. It has been proposed that gradable adjectives project an extended functional structure including a degree head (Corver 1990, 1997; Grimshaw 1991; Kennedy 1999). The degree head is generally taken to be filled by the comparative and superlative morphology.

(i) $[_{DegP}\ [_{Deg'}\ [_{Deg'}\ Deg^0\ [_{AP}\ A^0$ Complement$]]$ XP (than Peter / as Johan)$]$

6. In the glosses, the following abbreviations are used

F	feminine	NEG	negation	DEF	definite
M	masculine	PRES	present	DET	definite determiner
SG	singular	PAST	past	COM	common gender (Scandinavian).
PL	plural	SUBJ	subjunctive		

The following abbreviations are used to indicate the languages in the examples: Bulg = Bulgarian, Ge = German, Gk = Modern Greek, SBC = Serbocroatian, Som = Somali, Sp = Spanish, Sw = Swedish.

The preceding examples show that gradability and its reflexes in degree expressions and superlative and comparative morphology cannot be taken to characterize adjectives as a class cross-linguistically. This notwithstanding, it is true that gradability is an important semantic property of a large subset of adjectives in many languages. Kennedy and McNally (2005) propose a semantic typology of gradable predicates based on the properties of the scales along which these predicates order their arguments (their *scale structure*). These authors propose to classify gradable predicates along two parameters: (i) whether the scale involved is open or closed and (ii) whether the standard of comparison for the predicate is relative (i.e. fixed contextually) or absolute (a maximal or minimal value on the scale, irrespective of context).

(6) a. open scale relative : *big*
   (i) no upper limit on the scale: *big* is incompatible with *completely*
   (ii) relative standard of comparison: *big* can be modified by *very*

b. closed-scale absolute adjective: *undocumented*
   (i) upper limit on the scale: *completely undocumented*
   (ii) absolute standard of comparison: # *very undocumented*

Kennedy & McNally point out that the two properties of gradable predicates interact; in particular, gradable adjectives associated with totally open scales have relative standards (Kennedy & McNally 2005:361). The inverse correlation is not as strong: gradable adjectives that use totally or partially closed scales need not have absolute standards but in the default case the standards for close-scale adjectives correspond to an endpoint of the scale (either the minimum or the maximum).

As the preceding discussion shows, the claim that gradability is proto-typical of adjectives cannot be maintained. However, even if gradability does not characterise adjectives as a class, it is an important semantic property of a large subset of adjectives in many languages that is a crucial component of the meaning of many adjectives.

2.2 Intersective and non-intersective adjectives

Adjectives can further be classified based on the inferences that an adjective+noun combination can license.[7] The simplest case is that of *intersective* adjectives: these adjectives license inferences between the attributive and the predicative use based both on the noun and on the adjective:

7. In what follows I limit myself to the contrast between intersective and non-intersective adjectives, since this contrast affects a large proportion of adjectives. For some additional contrasts concerning specific lexical items see the detailed discussion of English /Italian contrasts in Cinque (2010, Chapter 2).

(7) Intersective adjectives: Licensed inferences

a.	X is Adj N → X is a N	X is a red house → X is a house
b.	X is Adj N → X is Adj	X is a red house → X is red

Among the adjectives that are not intersective, we can distinguish *subsective* adjectives, and *non-subsective* adjectives. For subsective adjectives only one of the patterns of inference is fulfilled, namely the inferences based on the noun:

(8) Subsective adjectives: Licensed inferences

a.	X is Adj N → X is a N	X is a perfect typist → X is a typist
b.	X is Adj N ↛ X is Adj	X is a perfect typist ↛ X is perfect

Non-subsective adjectives can be further divided into *simple non-subsective* adjectives where the adjective+noun combination implies neither the adjective nor the noun, and *privative* adjectives that license a negative inference for the noun:

(9) Non-subsective adjectives

i Simple non-subsective

a.	X is Adj N ↛ X is a N	X is an alleged murderer ↛ X is a murderer
b.	X is Adj N ↛ X is Adj	X is an alleged murderer ↛ *X is alleged

ii. Privative

a.	X is Adj N → X is not a N	X is a fake diamond → X is not a diamond
b.	X is Adj N ↛ X is Adj	X is a fake diamond ↛ X is fake

The intersective/non-intersective distinction is partially correlated with the syntax of the adjectives: only attributive adjectives allow intersective and non-intersective readings, while predicative adjectives are always intersective.

It has been observed that some attributive adjectives give rise to intersective/non-intersective ambiguities (Vendler 1967; Larson 1998), as in the following example.

(10) Olga is a beautiful dancer.

i.	'Olga is a dancer who is beautiful'	(Intersective reading)
ii.	'Olga dances beautifully'	(Non-intersective reading)

Larson (1998, 2000) argues that adjectives with a non-intersective reading are closer to the noun. When combined with an adjective like *blonde* that only has an intersective reading, the adjective *beautiful* can only have the non-intersective reading if it is closer to the noun as in (11a); when *beautiful* is separated from the noun by the intersective adjective *blonde*, only the intersective reading is possible (11b):

(11)	a.	Olga is a **blonde beautiful** dancer	INT – INT ok INT – NON-INT ok
	b.	Olga is a **beautiful blonde** dancer	INT – INT ok NON-INT – INT * (ex 40 from Larson & Takahashi 2007)

As pointed out by Larson, the analysis of the intersective/non-intersective ambiguity proposed by Siegel (1980, see Section 3.3 below) attributes the ambiguity to a hidden semantic ambiguity of adjectives and implicitly assumes that nouns do not contribute to the ambiguity.

The analysis proposed by Sproat & Shih (1991) attributes the difference between intersective and non-intersective modification to a difference in syntactic structure between the modifiers: intersective modification results from reduced relatives while non-intersective modifiers are APs. Larson (1998) proposes that the semantic difference is due to the syntactic position of the modifier in the noun phrase: modifiers that attach outside the NP are uniformly intersective, modifiers that attach inside the NP are non-intersective. Larson analyses intersective pre-nominal adjectives as originating post-nominally in the position of relative clauses; their surface position is analysed as the result of movement (for a recent proposal for the syntactic analysis of direct and indirect modification see Cinque 2010).

2.3 Aspectual classes of adjectives

The bulk of the work on aspect has studied the aspectual contrasts that can be observed for verbs (following Vendler 1967). In more recent research on aspect, aspectual contrasts have been studied for other word classes including adjectives, nouns (Borer 2005), and prepositions.

Aspect in non-verbal categories has not received the same attention as verbal aspect, even though as early as 1979, Dowty pointed out that the stative/non-stative distinction can also be applied to adjectives and nouns (Dowty 1979). Dowty used the progressive to distinguish stative and non-stative adjectives and nouns: while stative adjectives and nouns are incompatible with the progressive (12b/b′), non-stative ones allow it (12a/a′):

(12) a. John is being careful. a′. John is being a hero.
b. *John is being tall. b′. *John is being a grandfather.
(Dowty 1979: 130)

Ultimately, however, Dowty classified adjectives as stative predicates on a par with stative verbs and common nouns (Dowty 1979: 384), thus taking the states in the Vendler-classification to extend to adjectival states. In subsequent research it is evident, however, that adjectival states do not easily fit the Vendler classification; Rothstein's (2004) detailed study of Vendler classes, for example, characterises *verbal* states as cumulative, non-dynamic and totally homogeneous, explicitly excluding *adjectival* states from her discussion. This choice is empirically justified since adjectival states such as *careful* combined with the copula *be* fail the tests for verbal states (see Rothstein 2004: 14–15).

In recent research on lexical aspectual properties of verbs (*Aktionsart,* or *situation aspect,* Smith 1991), the lexical aspectual properties of verbs are analysed in terms of subevental structure (see e.g. Ramchand 2007 and references cited there). This subevental structure is reflected in the structure of the temporal trace of the event: an accomplishment like *build a house* for example, can be viewed as having an INITIATING EVENT that sets off the process, a PROCESS PHASE (of building) and a RESULT PHASE (the house being finished) with the three elements corresponding to three parts of the temporal trace.

In a manner similar to verbal predicates the meaning of adjectives can also impose conditions on the internal structure of the interval of which the state holds. Take an adjective like *dead* or *changed*: both adjectives imply that the state holds of an interval that has a left boundary; while the interval of which *dead* is true by virtue of its lexical meaning does not have a right boundary, *changed* is neutral with respect to the length of the interval.

(13)	a.	He was dead.	(transition, no right boundary)
	b.	He was changed.	(transition, right boundary not restricted)

Gradability further affects the temporal trace of which the state holds in two respects: (i) the distribution of the property denoted by the state across the interval and (ii) the possible transitions from state to non-state. Compare the following examples illustrating the distribution of a state across an interval: while *drunk* is compatible with varying degrees of drunkenness over an interval, *open/closed* for a shop is a yes-no state that either holds or does not hold. These two examples also contrast with respect to the possible transitions from state to non-state: while the transition from *sober* to *drunk* is a matter of degree, the transition from *open* to *closed* (for a shop) is not: the interval of which *open* holds has a right boundary, while this need not be true for the interval of which *drunk* holds as the transition is gradual.

(14)	a.	The shop is open.	yes/no states
	b.	He was drunk/sick.	gradable states

The study of deadjectival verbs in Kennedy and Levin (2008) (following Hay, Kennedy & Levin 1999) supports the hypothesis that there is dualism between gradability in adjectives and lexical aspect (telicity) in verbal predicates. More specifically, they provide evidence that deadjectival verbs such as *to cool* and *widen* inherit the scalar properties of the adjectives from which they are derived and that these scalar properties largely determine the aspectual properties of the derived verb.

Notice that the aspectual distinctions evoked above cannot be reduced to the contrast between individual-level and stage-level adjectives: adjectives like *open* and *drunk*

are both s-level but differ in their gradability properties and in the internal structure that they impose on the temporal trace of their state.

Marín (this volume) argues that at least three aspectual classes of adjectives have to be distinguished for Spanish, based on the distribution of the copulas *ser* and *estar* and the distribution of semi-auxiliaries such as *acabar de* + infinitive/*seguir* + gerund.

3. The syntax of adjectives

As is well-known, adjectives can appear in two main types of syntactic contexts: as *attributive* adjectives directly modifying a noun (15) and as *predicative* adjectives in the complement of a copula (16a) and as secondary predicates (16b):

(15) Attributive adjectives

a. The **blue** car came down the avenue.

b. Das **blaue** Auto kam die Strasse entlang. (Ge)
DET blue.NOM.MSG.WK car came DET road along
'The blue car came along the road.'

(16) a. Predicative adjectives (copula)

i. The car is **blue**.

ii. Das Auto ist **blau**. (Ge)
DET car is blue
'The car is blue.'

b. Predicative adjectives (secondary predication)[8]

i. John painted the house **blue**.

ii. Sie streicht das Haus **blau**. (Ge)
she paint.PRES3SG DET house blue
'She is painting the house blue.'

As the contrast between (15b) and (16aii/bii) illustrates, the two contexts can differ in terms of their morphological properties: in German attributive adjectives show agreement in gender, number and case with their head noun (the form of the agreement depending also on the type of determiner) while predicative adjectives in (16) are invariant.

8. The following examples use resultatives to illustrate secondary predication – but see the discussion above that some languages that do have adjective do not admit the use of adjectives as resultatives. Depictives as in *She left the house* angry are also cases of secondary predication.

An analysis of the syntax of adjectives therefore should aim to address the following three questions:

i. What is the syntax of *attributive* adjectives: how are nouns and adjectives combined in the syntax?
ii. What is the syntax of *predicative* adjectives?
iii. What is the relationship between attributive and predicative adjectives?

In what follows, I will review the analyses proposed for attributive and predicative adjectives separately (Sections 3.1 and 3.2). Section 3.3 then addresses the question of the relationship between attributive and predicative adjectives. I review well-studied semantic differences between attributive and predicative adjectives and then discuss some syntactic differences with respect to multiple modification.

3.1 The syntax of attributive adjectives

In what follows I will give a brief overview over the different analyses that have been proposed. As the discussion will show, there is no consensus in the literature as to the analysis of the syntax of attributive adjectives cross-linguistically.

In the second and third subsections I will come back to two empirical problems, namely prenominal adjectives with complements (3.1.2) and languages with two syntactically different types of adjectives (3.1.3).

3.1.1 *Analyses of attributive adjectives: An overview*

Two main approaches to the syntax of attributive adjectives can be found in the literature: adjectives are analysed as either heads or specifiers.

According to the first type of approach, adjectives are heads that take the NP as a complement (Abney 1987) or as a specifier (Bhatt 1990; Delsing 1993). The first analysis of adjectives as heads was proposed in Abney (1987). This analysis treats adjectives as heads that are selected by D and take an NP complement:

(17) $[_{DP}$ D $[_{AP}$A $[_{NP}$ N]]]

The main argument for this analysis was the observation that in English prenominal adjectives cannot have complements. If the analysis is taken to be an analysis of adjectives cross-linguistically, however, this argument loses its forces since many languages do allow prenominal attributive adjectives to take complements (see discussion in Section 2.1.4 below).

Based on the observation that prenominal adjectives do admit complements in Mainland Scandinavian and in German, Delsing (1989) and Bhatt (1990) propose an alternative analysis, according to which the adjective is a head but the NP is the

(right-hand) specifier of N, while the complement of the adjective is in complement position of the adjective (see Svenonius 1992:113–7 for a critical evaluation of this proposal).

In the second type of approach, adjectives are phrases that are either adjoined to NP ((18a), see Jackendoff 1977, Valois 1991) or specifiers of dedicated functional projections in the extended projection of the noun ((18b), Cinque 1994)[9]

(18) a. $[_{DP}$ D $[_{NP}$ AP NP]] (left-adjoined AP)
$[_{DP}$ D $[_{NP}$NP AP]] (right-adjoined AP)
b. $[_{DP}$ D $[_{FP}$ AP F $[_{FP}$ AP F $[_{NP}$ N]]]] (AP in spec FP)

Delsing (1993), citing Cinque (1994), further distinguishes between adjectives in nominalisations which have equivalents in the clause (either the external theta-role or an adverb) and adjectival modification of underived nouns.

(19) a. thematic adjectives in nominalisations
the *Italian* invasion of Albania
b. adverbial adjectives in nominalisations
the *constant* nagging about taxes
c. modifying adjectives
the *red* house

Cinque (1994: 86–89) analyses thematic adjectives as specifiers of N, while modifying adjectives are specifiers of other functional projections selected by D.[10]

(20) a. $[_{DP}$ D $[_{NP}$Adj-th $[_{N'}$ N XP]]]
b. $[_{DP}$ D $[_{FP}$Adj $[_{FP}$Adj $[_{NP}$ $[_{N'}$ N XP]]]]]

9. For an elaborate version of this account see Scott (2002).

10. For adverbial adjectives (Cinque's *manner adjectives*) Cinque considers two possibilities:

(i) either manner adverbs are in a functional projection outside NP with thematic adjectives in spec NP (Cinque 1994: 90)
N $[_{XP}$ AP manner t $[_{NP}$ AP thematic t YP]] (Cinque's ex 10)
(ii) or manner adverbs and thematic adverbs both compete for the same NP external position (Cinque 1994: 92)
$[_{XP}$ APsp-or $[_{YP}$ APsubj-or $[_{XP}$ AP manner/AP thematic t $[_{NP}$ N]] (Cinque's ex 14)

There seems to be a third possibility, that Cinque does not examine:

(iii) manner adverbs and thematic adjectives compete for the position in spec NP
N $[_{NP}$ AP manner/AP thematic t YP]]

A third type of approach is proposed by Sigurdsson (1993: 178) based on Icelandic: according to this analysis attributive adjectives are head-adjoined to nouns:[11]

(21) $[_{QP}$ Q $[_{DP}$ D $[_{NP}$ [A N]]]]

In analyses that associate each adjective with a specific head be it an adjective-head A or a functional project F that takes the adjective in its specifier, the relative order of adjectives can be attributed to the relative order of the respective heads:

(22) a. $[_{DP}$ $[_{AP}$ A $[_{AP}$ A [N]]]]
b. $[_{DP}$ $[_{FP}$ AP F $[_{FP}$ AP F [N]]]]

Under an analysis that takes adjectives to adjoin to the nouns they modify, adjective order is expected to be essentially free (see Bouchard 2005 and Svenonius 2008 and references cited there for a detailed discussion of adjective ordering).

Languages such as Modern Greek and Albanian that allow multiple occurrences of the definite determiner (polydefinites) add a further complicating factor to the analysis of attributive adjectives since the appearance of multiple determiners has an impact on adjective ordering (see Androutsopoulou 1995, 2001; Alexiadou & Wilder 1998; Kolliakou 2004 for discussion).

3.1.2 *Prenominal adjectives with complements*

One problem for the analysis of pre-nominal adjectives as heads is the fact that in many languages (German, Modern Greek and Swedish) prenominal adjectives can take complements other than the head noun:

(23) a. i [periphani ja to jo tis] mitera (Gk)
the proud for the son her mother
(ex 43a, Alexiadou & Wilder 1998: 219)

b. die auf ihren Sohn stolze Mutter (Ge)
the on her son proud mother

c. den över sin dotter stolt-a mamma-n (Sw)
the of her daughter proud-DEF mother-DEF
'the mother who is proud of her daughter'

11. Sigurdsson notes that this analysis implies that adverbs modifying adjectives such as *too* and *very* that are analysed as specifiers of adjectives in e.g. Jackendoff (1977) have to be head-adjoined to the adjective, too.

These examples also show that the *no-complement restriction* on prenominal adjectives in French and English (Emonds 1976; Williams 1982; DiSciullo & Williams 1987; Sadler & Arnold 1994; Bouchard 2002) has to be linked to specific properties of the syntax of French and English:

(24) a. *une fière de sa fille mère (Fr)
*a proud of her daughter mother

b. une mère fière de sa fille
a mother proud of her daughter (ex 153 in Bouchard 2002: 140)

Notice that it is not sufficient to pose a type of head-final filter for English and French: it also has to be explained why the order complement + adjective is not possible in prenominal position. This switch in word-order depending on the syntactic environment is attested in Scandinavian (examples from Swedish).[12] As the following examples show, the adjective can appear with a preposed complement in pronominal position, even though Swedish is like English in that in predicative use with a copula (25b) and in secondary predication (25c) the order is adjective + complement:

(25) a. de sin fiende överlägsna hären (Sw)
the REFL enemy superior army
'the army that is superior to its enemy'

b. Hären var överlägsen sin fiende.
army-the was superior REFL enemy
'The army was superior to its enemy.'

c. Det nya vapnet gjorde hären överläsgsen sin fiende.
the new weapon made army-the superior refl enemy
'The new weapon made the army superior to its enemy.'
(Delsing 1993: 121 ex 33/34)

Notice that for some speakers of Swedish the inverted order is possible for bare DP complements with predicative adjectives (26) – the basic argument here remains unaffected since with PP-complements the inverted order is excluded in predicative uses but the only possibility in pre-nominal position (27):

(26) Adjective + NP complement:

a. den sina vänner trogn-a mann-en (Sw)
DET-COM his friends faithful-DEF man-DEF
'the man who is faithful to his friends'

12. I thank Anders Holmberg for discussion of these examples.

b. Mannen är trogen sina vänner
man-DEF is faithful his friends
'The man is faithful to his friends.'

c. ?Mannen är sina vänner trogen
man-DEF is his friends faithful (archaic)
'The man is faithful to his friends.'

(27) Adjective + PP complement

a. den över sin dotter stolt-a mamma-n (Sw)
DET-COM of her daughter proud-DEF mother-DEF
'the mother that is proud of her daughter'

b. Mamman är stolt över sin dotter.
mother-DEF is proud of her daughter
'The mother is proud of her daughter.'

c. *Mamman är över sin dotter stolt.
Mother-DEF is of her daughter proud

As pointed out by Svenonius (1992: 112), the position of pre-adjectival modifiers such as *very* supports the assumption that the complement has been preposed to the AP: if the adjective had changed headedness we would expect the complement to intervene between the N and the pre-adjectival modifier in (28).

(28) en av sin bror **meget** beundret mann (Sw)
a by his.REFL brother **very** admired man
'a man that is very much admired by his brother' (ex 29a in Svenonius 1992)

Cinque (2010, Chapter 4) shows that prenominal adjectives can even be followed by adjuncts in Bulgarian and in Greek:

(29) a. glavnata po znacenie pricina (Bulg)
main.the in significance reason
'the main reason for importance'

b. o kírios kata protereótita logos (Gk)
the main by priority reason
'the main reason in terms of priority' (exs in Cinque 2010: Chapter 4)

Notice that in both examples the pre-nominal adjective is *glavna/kírios,* "main", an adjective that cannot be analysed as a relative clause.

The data reviewed here show that the complementation possibilities of prenominal adjectives are not uniform cross-linguistically. Consequently, these data cannot provide a decisive argument in favour of an analysis of adjectives as heads in the extended projection of the noun.

3.1.3. *Languages with different types of adjectives*

The analyses of the syntax of attributive adjectives reviewed here differ substantially in their structure and draw on different languages for empirical evidence. Furthermore, the analyses of long and short form adjectives in Russian by Babby (this volume) and in Serbocroatian by Aljović (this volume) support the conclusion that different types of syntactic analyses in fact correspond to different types of adjectives within the same language, since both analyses assign different syntactic structures to long and short adjectives.

It is therefore possible that the syntax of adjectives varies cross-linguistically, with different types of syntactic analyses in fact corresponding to different types of adjectives, possibly even within the same language.

Cinque (2010: Chapter 3–4) suggests an alternative interpretation of the variation observed in the syntax of attributive adjectives. According to Cinque's 2010 analysis, attributive adjectives have two sources: direct modification adjectives are specifiers of functional heads while indirect modifiers are reduced relatives clauses that are generated in the specifier a higher functional projection. If this analysis is essentially correct, prenominal adjectives fall into two domains: the direct modification domain is subject to ordering restrictions, while the ordering between reduced relatives is free. The freer word-order among prenominal adjectives observed in some languages can then be attributed to an alternation between a reduced relative and a direct modifier analysis of the prenominal adjective.

3.2 The syntax of predicative adjectives

The syntax of predicative adjectives seems much less controversial than the syntax of attributive adjectives. It is widely assumed that predicative adjectives (and nouns) combine with a functional category PRED, that introduces the subject of the predication above the AP/NP proper (Bowers 1993).

Baker (2003: 39) argues in detail that English *be* should not be analysed as a lexical manifestation of PRED, since *be* need not appear in untensed small-clause contexts (see (30)) where PRED is still needed, by hypothesis, to introduce the subject of nouns and adjectives:[13]

(30) a. The poisoned food made Chris sick/an invalid.
b. I consider Chris intelligent/a genius.
c. With Chris sick/an invalid, the rest of the family was forced to work harder. (ex 40, Baker 2003: 40)

13. Notice that in 17a/c *be* cannot be inserted.

This means that the functional category PRED need not be overt. However, as argued in Baker (2003), assuming this null element implies that verbal and non-verbal lexical categories differ with respect to the nature of their specifier: while the specifier of adjectives and nouns is introduced by PRED and therefore external to the AP/NP, the specifier is part of the lexical projection of V. This difference can then be used to explain the contrast between adjectives and nouns on the one hand and verbs on the other hand regarding tense-aspect morphology and causative morphemes (Baker 2003: 46–59).

3.3. The relationship between attributive and predicative adjectives

Since many adjectives have predicative and attributive uses, it is tempting to reduce attributive and predicative adjectives to a single case. One possibility of doing this is to view attributive adjectives as derived from predicative adjectives via a relative clause (following the Port Royal grammarians). This type of analysis squares well with the observation that in many languages, predicative adjectives are morphologically simpler than attributive adjectives: in German, e.g. predicative adjectives are invariant while attributive adjectives have agreement morphology, in Russian, predicative adjectives but not attributive adjectives can appear in the short form that marks fewer features.[14]

Unfortunately, an analysis that reduces attributive adjectives to predicative adjectives encounters several empirical problems (see also the discussion in Cinque 2010, Section 4.1.3).

First, many adjectives can be attributive but not predicative (31). Inversely, many adjectives can be predicative but not attributive (32).

(31) the **main** idea vs. *The idea is **main**.

(32) a. *the **asleep** man a′. The man is **asleep**.[15]
b. *the ready woman b′. The woman is ready.

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14. There are also analyses that take attributive adjectives to be more basic as e.g. in Hengeveld 1992:

(i) “Attributive use is the criterion that most reliably distinguishes adjectives from other word classes. Hengeveld (1992: 59)”

(ii) “An adjectival predicate is a predicate which, without further measures being taken, can be used as a modifier of a nominal head. (Hengeveld 1992: 58)”

15. In English many adjectives in *a*- are of this type: *asleep, awake, agog, askew* (see Huddleston & Pullum 2002: 529).

Notice, that the possibility of appearing in attributive or predicative position can change when adjectives are modified (Huddleston & Pullum 2002: 559):

(33) a. a wide-awake patient
b. their still awake children (examples from Huddleston & Pullum 2002: 559).
c. a ready-to-use website

A final problem for analyses deriving attributive adjectives from predicative ones it the fact that the attributive use and the predicative use of an adjective need not have the same meaning (Bolinger 1967). More generally, only attributive adjectives can have non-intersective meanings.

(34)	a.	the old director (=former)	a′.	The director is old. (=elderly)
	b.	the responsible man	b′.	the man responsible (for the contract)
				(Bolinger 1967: 4)

If attributive adjectives were uniformly derived from predicative adjectives, we would expect them to have the same meaning.

Based on this evidence against a unifying analysis of attributive and predicative adjectives, Siegel (1980) concluded that adjectives can be of two semantic types. Some adjectives were analysed as having the semantic type ⟨e,t⟩, which is the type for intersective attributive and for predicative adjectives, while other adjectives are of type ⟨⟨e,t⟩, ⟨e,t⟩⟩, a modifier, which is the type for non-intersective attributive adjectives (for the distinction between intersective and non-intersective adjectives see Section 2.2 above). This approach then has to account for the fact that a large proportion of adjectives allows intersective and non-intersective and attributive and predicative uses, it is therefore necessary to characterise the adjectives that only allow one semantic type.

It has further been observed that attributive adjectives show a distinction that seems related to the attributive/predicative distinction (Bolinger 1967; Sproat & Shih 1988). Sproat & Shih (1988) propose that attributive modification can be either *direct* or *indirect* modification: direct modifiers are simple APs while indirect modifiers are reduced relative clauses. Sproat & Shih argue that this syntactic distinction is reflected in two properties: while direct modification is open to intersective and non-intersective modifiers and subject to ordering restrictions, indirect modification is limited to intersective modifiers and not subject to ordering restrictions, resembling relative clauses. If this analysis is correct, attributive adjectives cannot be generally reduced to predicative adjectives (i.e. to reduced relative clauses), supporting the conclusion that two types of adjectives have to be distinguished.

A further property distinguishing attributive and predicative adjective is multiple modification. In English, attributive adjectives can be stacked without coordination (35a), while predicative adjectives cannot: multiple predicative modification requires coordination (35b):

(35) a. the big red ball
b. *the ball is big red vs. the ball is big and red

There are languages that do not allow stacked modification by attributive adjectives, however. According to Simpson (2005: 834) Thai, Nung and Indonesian only allow a single adjective to occur in the (post-nominal) adjective position; when two adjectival modifiers appear, they have to be conjoined (in Thai and Nung) or the second modifier has to be expressed in a relative clause (in Indonesian).

Somali, a Cushitic language, patterns with Thai and Nung in requiring two adjectival modifiers to be coordinated by either *oo* or *ee*.[16]

(36) koob-ga weyn *(oo) cad (Som)
cup-DET.M big OO white
'the big white cup'

In Somali this behaviour is a special case of a more general requirement that any two post-nominal modifiers be coordinated, whether they be genitive DPs, adjectives or relative clauses (37) (see e.g. Gebert 1981; Bendjaballah & Cabredo Hofherr 2006 for an analysis of Somali DP-structure).

(37) a. qálin-ka macállin-ka oo cusúb (Som)
pen-DET.M teacher-DET.M OO new
'the new pen of the teacher' (genitive + adjective)

b. wíil-ka yar oo aan arkó
boy-DET.M small OO I see1SG.SUBJ
'the small boy that I see' (adjective + relative)

c. dukaan-ka dhar-ka ee Cali
shop-DET.M clothes-DET.M EE Ali
'Ali's clothes' shop' (ex in Gebert 1981) (genitive + genitive)

The languages discussed above do not allow stacked modification without coordination (Thai, Nung and Somali) or subordination (Indonesian). However, even in languages that in principle allow stacking of adjectives the coordination of adjectives may have specific semantic properties. Aljović (this volume) shows that in Serbocroatian long and short form adjectives differ in their coordination possibilities: while long form adjectives can be coordinated over a common N, yielding a split reading (38a),

16. The conditions governing the choice between *ee* and *oo* are poorly understood, see Gebert (1981) and Saeed (1999: 189) for diverging generalisations.

short form adjectives cannot (38b) ((38c) shows that coordinated short form adjectives allow a joint reading):

(38) a. long form adjectives allow split reading (i.e. reference to two individuals)

Moj bivši i sadašnji muž (SBC)
my former and present husband
'my former and my present husband'

b. short form adjectives disallow split reading

#jedan nov i star motor
one new and old motorcycle
#'a new and old motorcycle' (one individual, contradictory)

c. short form adjectives allow a joint reading (one individual only)

jedan spor i star motor
one slow and old motorcycle
'a slow and old motorcycle' (exs 15a/17 in Aljović, this volume)

The preceding discussion shows that the analysis of multiple adjectival modification is a complex problem going well beyond the widely studied conditions governing adjective ordering (see Bouchard 2005 & Svenonius 2008 for discussion and references). In particular, the data discussed show that for the analysis of multiple adjectival modification in a language the analysis of multiple modification in general has to be taken into consideration.

As the brief review in this section shows, the syntax of adjectives still poses considerable challenges to linguistic analysis. An adequate analysis has to account for the fundamental differences observed between predicative and attributive adjectives, and also for the syntactic differences between different types of adjectives that may be found within a single language.

4. The contributions to this volume

The first four papers in this volume examine different aspects of the syntax of adjectives cross-linguistically.

Nadira Aljović' contribution studies the syntax of long- and short-form adjectives in Serbocroatian, drawing particularly on data from the Bosnian variant that marks long- and short-forms by vowel-length and pitch-accent in addition to dedicated morphological suffixes. Based on evidence from ellipsis, noun phrase-internal coordination and ordering of multiple adjectives, she proposes two different structures for attributive long- and short-form adjectives. While attributive long-form adjectives are analysed as occupying the specifier of a functional projection dominating NumP,

short-form attributive adjectives are analysed as adjoined to NumP. Aljović shows that this analysis is further supported by the differences in agreement morphology observed between long- and short-form adjectives. An important consequence of Aljović' analysis is that attributive adjectives do not necessarily involve a single syntactic structure language-internally, and by extension, cross-linguistically.

Leonard Babby's paper presents an analysis of the syntax of long- and short-form adjectives in Russian. Babby proposes that the root node of the phrasal projection of long-form Russian adjectives has associated with it the adjective stem's unlinked external theta role that needs to be bound by a higher DP. The phrasal projection of short-form adjectives is a small clause whose nominative subject is assigned the stem's external theta role; the subject then raises to the spec-position of the copula projection with which the short-form small clause obligatorily merges. The paper provides detailed evidence that the proposed small-clause and s(econdary)-predicate structures account for the syntactic distribution and meaning of short and long form adjective phrases. The main analytical challenge is posed by examples with a copula, where both long- and short-form adjectives can appear. Babby gives detailed empirical evidence that in combination with a copula long-form and short-form adjectives enter into different syntactic configurations. The proposed analysis has consequences for the cross-linguistic analysis of predicative adjectives: since both small-clause structures and secondary predication are available cross-linguistically, the distinction that Russian realizes morphologically by the short- and long-form suffixes should also have manifestations in other languages.

Hagit Borer and **Isabelle Roy** argue on the basis of data from English, French, Hebrew and Spanish that (apparent) adjectives which function as nominals belong to two distinct classes. One small class consists of true nouns that are homophonous with adjectives but are not derived from them. The second class consists of true attributive adjectives which modify a null N, and whose range of interpretations cross-linguistically depends on the conditions on the licensing and identification of null Ns in a given structure and in a given language. Borer & Roy claim that the two types of nominals differ in their distribution: while the former group can appear in any context where nouns are typically licensed, the latter group is restricted to strong environments. The restricted distribution of N-ellipsis structures is derived from the properties of the assumed head of N-ellipsis, referential *pro* which is always definite.

The paper by **Waltraud Paul** investigates the syntax and semantics of adjectives in Mandarin Chinese. Paul argues that adjectives have to be treated as a separate part of speech in Mandarin Chinese that cannot be conflated with intransitive verbs (contra McCawley 1992). In particular, Paul shows that adnominal adjectives introduced by *de* should not be analysed as reduced relative clauses or small clauses, since adjectives that cannot be used predicatively can be used adnominally in conjunction

with *de*. For *de*-less modification of the noun Paul adduces evidence from N-subdeletion and multiple adjective ordering that shows that the [A N] sequence has to be analysed as a noun phrase, not as a compound. Further evidence for a difference between adjectives and verbs comes from the morphology of reduplication: while disyllabic verbs of the form 'AB' reduplicate as AB-AB, disyllabic adjectives reduplicate as AA-BB.

The papers in the second part of this volume are concerned with the semantic analysis of adjectives.

Peter Alrenga examines comparisons of similarity and difference in English involving *different*, *same* and *like*, as exemplified by *I am different now than I used to be/I am the same now than I used to be/I am still a great deal like I used to be*. The paper addresses two main problems. First, Alrenga examines the relationship between comparisons involving *different, same* and *like* and scalar comparisons exemplified by *I am taller now than I used to be*. Since both constructions are shown to differ only on a few points, Alrenga concludes that comparisons of similarity and difference should be analysed as a subclass of comparative constructions. Secondly, the paper examines the scope of comparisons of similarity and difference and shows that these comparisons are best analysed as comparisons between sets of properties.

The paper by **Javier Gutiérrez-Rexach** develops a semantic analysis of superlative descriptions as a subclass of definite DPs. The proposed analysis treats the definite determiner in superlatives (and not the superlative itself) as the locus of the contextual restrictions and adduces evidence from presuppositions and from different dependent readings of superlatives for the parallel between superlatives and definites. Gutiérrez-Rexach examines the contextual factors that affect the interpretation of superlatives in detail and introduces a distinction between the context set of the definite and the frame of comparison of the superlative. The paper discusses the role of focus in the comparative reading of superlatives in an array of constructions such as existential sentences and focused quantifiers such as *everybody, several X* and *many X*. Finally, Gutiérrez-Rexach shows that the hypotheses introduced —in conjunction with several assumptions about the syntax/semantics interface—are sufficient to explain the much debated "upstairs *de dicto*" reading (Heim 1999).

Petra Sleeman's contribution proposes an analysis of adjectives that license non-modal infinitival relative clauses as in the following example: *He was the youngest child [to have had that operation at that time]*. It has been observe that the head of non-modal relatives asserts uniqueness (Kjellmer 1975), and Sleeman analyses the uniqueness constraint on the noun phrase modified by non-modal infinitival relatives as licensing by an identificational focus. More specifically, the author argues that the identificational focus has to be a *contrastive* identificational focus. This condition ensures that the licensing adjectives exclude the existence of a still higher or lower degree, yielding uniqueness by selecting the endpoint of a scale. According to Sleeman's analysis, superlatives and comparable modifiers are polysemous. In their positive use

they assert a positive proposition and entail a negative one, in which case they function as identificational foci; in their negative use, on the other hand, they assert a negative proposition and entail a positive one, in which case they function as contrastive foci. If the negative contribution is the assertion, superlatives and equivalent modifiers license non-modal infinitival relatives, subjunctive relative clauses (e.g. in Romance) and negative polarity items like *ever*. If the positive contribution is the assertion, superlatives and comparable modifiers do not license non-modal infinitival relatives, subjunctive relative clauses, and negative polarity items, but only indicative relative clauses.

Catherine Léger provides a detailed study of clausal complementation of adjectives in French. Dyadic adjectives selecting a clause as one of their arguments differ with respect to the syntactic realization of their complement; some adjectives introduce both non-finite and tensed complements (in the indicative or in the subjunctive), while others appear exclusively with tenseless complements. Léger proposes an analysis that derives the syntactic realization of the complement from the semantic properties of the matrix adjective. Depending on their meaning, adjectives select a specific ontological category (*proposition*, *event*, *action*), which is mapped to a particular projection in the syntax (following Rochette 1988). Among the adjectives that allow only non-finite complements Léger identifies a class of adjectives that form a complex predicate with the complement they select as their argument. The structures involving these adjectives therefore have to be analysed as monoclausal structures; true subordination is thus not involved in these cases. Léger further discusses one class of apparent counterexamples to the proposed syntax-semantics mapping which she calls "impostor" adjectives: these adjectives appear with clauses that are not selected elements (arguments) but adjuncts.

Finally, the paper by **Rafael Marín** shows that the compatibility with *ser* or *estar* (*be* vs. *be*. LOCATIVE) is not a defining diagnosis for determining the i-level or s-level nature of Spanish adjectives, a distinction that Marín defines in terms of boundedness. For an empirically adequate classification of adjectives, additional criteria for boundedness have to be taken into account, namely the compatibility (i) with certain pseudo-copular verbs, (ii) with adjunct predicates and (iii) with absolute constructions. Marín shows that adjectives like *enfermo* ('ill'), which in addition to their compatibility with ESTAR can appear in all these contexts, can be properly considered bounded (i.e. s-level adjectives). Among the ambivalent adjectives (underspecified for i-level/s-level distinction), at least two types have to be distinguished: adjectives like *nervioso* ('nervous') which are compatible with SER and are also allowed in any of the other s-level-contexts, and adjectives like *viejo* ('old'), which allow SER and ESTAR, but do not pass any of the other tests for boundedness. This implies that only *nervioso*-type adjectives can be considered as properly ambivalent between a (bounded) s-level and an i-level interpretation.

Acknowledgements

Some of the articles collected in this volume were presented at the *International Workshop on the Analysis of Adjectives* held in September 2005 in Paris. We gratefully acknowledge the support of the Research project *Architecture de la Phrase,* of the Fédération *Typologie et universaux linguistiques* (CNRS FR 2559), the Laboratoire *Structures Formelles du Langage* (UMR7023), the *Conseil scientifique* of the Université Paris 8, the École doctorale (graduate school) *Cognition – Langage – Interaction* of the Université Paris 8 and the GDR *Sémantique et modélisation* (CNRS GdR 2521) towards the organisation of the workshop.

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PART I

Syntax

Syntactic positions of attributive adjectives*

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The present contribution studies the syntax of long- and short-form adjectives in Serbocroatian. The discussion draws particularly on data from the Bosnian variant that marks long- and short-forms by vowel-length and pitch-accent in addition to inflectional suffixes. Based on evidence from ellipsis, noun phrase-internal coordination and ordering of multiple adjectives, I propose two different structures for attributive long- and short-form adjectives: attributive long-form adjectives occupy the specifier of a functional projection dominating NumP, while short-form attributive adjectives are adjoined to NumP. I also show that this analysis contributes to explain the differences in agreement morphology observed between long- and short-form adjectives. Finally, I propose to extend the present analysis to German.

1. Introduction

Some languages use different forms of the same adjective depending on its syntactic position. In German, for example, attributive adjectives appear with an inflection (signaling agreement) which is absent from the predicative use. In Slavic languages, attributively used adjectives may appear with an additional inflection, which never appears on predicatively used adjectives. In other words, predicative adjectives are "shorter" than those appearing attributively.

In this paper, I address the Slavic phenomenon as it occurs in Bosnian/Croatian/Serbian (BCS), the language that inherited the main features of the short–long distinction of Old Church Slavonic (OCS) adjectives.[1] I will examine the behavior of

*The research reported in this paper benefited from discussions and exchanges on various occasions with Anne Zribi-Hertz, Wayles Browne, Željko Bošković and Midhat Riđanović, and I am grateful to them for the help, ideas, and information they provided. I would also like to express my gratitude to the participants of the Workshop on the Formal Analysis of Adjectives held in Paris on September 28 2005, as well as to my three anonymous reviewers for their comments and suggestions.

1. The name Bosnian/Croatian/Serbian will be used for the language also called Serbo-Croatian. The distinction between short and long adjectives (or traditionally "indefinite and

attributive adjectives in certain noun phrase internal processes, the main goal being to probe the internal structure of noun phrases hosting adjectives. The most important conclusion is that the two different forms of attributive adjectives correlate with two different noun phrase structures hosting them, and that attributive adjectives do not necessarily involve a single syntactic structure language-internally (see for example Bernstein 1993; Bouchard 2002 for Romance).

The paper is organized as follows: Section 2 summarizes the major properties of Slavic (BCS, OCS) "short" and "long" adjectives (morphological, syntactic and semantic). In Section 3 I show that the distinction between the short and the long adjectival inflection in Slavic correlates with two different structures of the noun phrase. This view is motivated by a systematic difference in the syntactic behavior of the two forms with respect to ellipsis (3.1), noun phrase internal coordination (3.2), and ordering of multiple adjectives (3.3). Section 4 deals with the problem of agreement on attributive adjectives. I will show how the syntactic solution proposed in Section 3 can be used to account for the puzzle of the "double" agreement of long adjectives and for distributional differences between the two forms, as well as for the morphology of the short and long inflections. In Section 4 I will try to apply the insights of the proposal to adjectival agreement in German. Section 5 contains a summary of the results of the research reported in this paper.

2. Slavic short and long adjectives (OCS and BCS)

I will first provide some background about morphological, syntactic and semantic properties of BCS (Slavic) short and long adjectives.

Morphology. The phenomenon is best illustrated by OCS where adjectives could appear with two different inflections (i.e. case-number-gender endings), nominal and

definite adjectival aspect") is mostly expressed through prosodic means (vowel length, tone, accent). Bosnian is a variant of BCS spoken in Bosnia and Hercegovina. Most differences between Serbian and Croatian on the one side, and Bosnian on the other, concern pronunciation and vocabulary, and the most prominent phonetic feature of Bosnian as opposed to Croatian and Serbian is its pitch-accent. Bosnian is also characterized by a clear distinction of short and long vowels in the stressed syllable of a word and in any following unstressed ones in the same word. Bosnian speakers are thus best equipped to produce clear accentual, tonal and vowel-length distinctions. This enables them to distinguish the two adjectival forms in a far greater number of contexts than the speakers of the two other variants. In most cases, the BCS data examined in this paper have been chosen so as to contain adjectival forms differing morphologically (segmentally) and not only prosodically (i.e. in nominative/accusative masculine singular where the short inflection is realized by a zero morpheme, and the long one by *-i*), in other words, such adjectival forms which should be more easily distinguished by speakers of Serbian or Croatian.

pronominal. Nominal inflections were morphologically different and shorter than pronominal ones; an adjective with a short inflection will be referred to in this paper as a *short* adjective. Pronominal inflections originate in an anaphoric pronoun (-*j*) which could be added to an adjective already bearing the short (i.e. nominal) inflection. This produces a *long* adjective (cf. Huntley 1993: 147; Schenker 1993: 84). The occurrence of the long inflection was syntactically conditioned: it occurred on adjectives used attributively, and not on those used predicatively. Thus in attributive use, adjectives could appear with an extra (pronominal) inflection; both inflections realized the same set of (agreement) features (case-number-gender) as if adjectives were agreeing twice with the head noun. This is illustrated with OCS *star-* 'old' in (1a/b):[2]

(1) a. star-**a** - short form OCS
old-GEN.SG.M/NT.nominal

b. star-**a** -**jego** - long form
old-GEN.SG.M/NT.nominal -GEN.SG.M/NT.pronominal

Through various phonological processes, the long adjective ended up as *starago* (<*staraago*<*staraego*).

This morphological pattern underwent considerable change in modern Slavic languages such as Russian, Polish, Czech, and Slovenian, the nominal inflection being more or less lost and the pronominal inflection generalized. Polish, Czech, and Slovenian have practically no short adjectives (they may occur in some proverbs or set phrases); Russian still has the short form. However, in this language too, the long form is gaining ground (for example, the short form does not distinguish case forms, and it cannot be used attributively, while the long form is permitted in both the attributive and predicative use; cf. Corbett 2004, Timberlake 1993, Babby (this volume), and also the references cited in Note 4).

BCS is the only Slavic language that preserves major morphological and syntactic aspects of the original (OCS) distinction between short and long adjectives in a certain number of case-number-gender contexts. The morphology of BCS still distinguishes nominal and pronominal inflections in the masculine and neuter singular.

2. Abbreviations used in the glosses are as follows:

NOM	nominative	SG	singular	F	feminine
GEN	genitive	PL	plural	AGR	agreement (marker)
DAT	dative	M	masculine	AUX	auxiliary verb
ACC	accusative	NT	neuter		

Numbers (1, 2, or 3) refer to persons. SE will be used to gloss the clitic 'se' which can be a reflexive but also has non-reflexive functions.

BCS adjectival forms corresponding to OCS in (1a/b) are given in (2a/b), (the colon is used to signal vowel length):

(2) a. star-**a** - *short form* BCS
old-GEN.SG.M/NT.nominal

b. sta:r- **og**(**a**) - *long form*[3]
old-GEN.SG.M/NT.pronominal

Syntax. The long form cannot be used predicatively. This is its most significant syntactic property.[4] In OCS and BCS this restriction is easily visible. The examples in (3) and (4) illustrate the contrast between short and long forms in BCS with respect to the predicative use:[5]

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3. The pitch-accent of this form is long falling (the stressed syllable is the one of the adjectival base, its vowel is long and bears falling tone), while that of the short form in (2a) is short rising (vowel length, when participating in the short/long distinction of adjectives will be marked by [:]; BCS orthography does not mark prosodic features). Like other modern Slavic languages, BCS pronominal morphology realizing adjectival case-number-gender agreement features is taking over and is spreading to SG.M/NT contexts as well. In Bosnian (at least), this spread does not imply that short forms are disappearing, only that their inflection is not segmentally different from those of long forms. Short forms (of a considerable number of adjectives) are distinguished by prosodic means and have different pitch-accent and vowel length values; for example, when the nominal inflection of the short form in (2a) above is replaced by the pronominal one *-og(a)*, the resulting adjective will preserve the pitch-accent values of short forms with nominal inflections of this adjective (short rising); thus, alongside *stara* Bosnian has *starog(a)*, too, as a "short" form of the adjective meaning 'old'; this latter form will appear in the same syntactic contexts as its corresponding short adjective with nominal inflection (for example, it can, replace the short adjective in (4) below). See Aljović 2000: § 2.1.1 for a detailed description of morpho-phonological aspects of the phenomenon.

4. In Russian, however, the long form can appear in what seems to be a predicate position and can have a predicate-like meaning. In fact, in the rich literature on Russian short and long adjectives, the long form appearing "predicatively" is analyzed as an attributive adjective followed by a null noun. See, for example, Babby (1970, 1999, this volume), Siegel (1976), Bailyn (1994), and Pereltsvaig (2000). The meaning of this noun is taken to be 'person' or 'thing'. However, BCS differs from Russian in that the interpretation of the null noun is strictly determined by the previous context: it refers to whatever antecedent is provided by the context, and nothing else. Besides, such an adjective actually agrees with the elided noun. Thus, it is possible to have a sentence such as *Marko je sta:ra:* (lit. Marko(MSG) is old(FSG)) where the adjective agrees with an elided feminine noun, (e.g. *budala* 'fool') and not with the masculine noun phrase subject 'Marko'.

5. An anonymous reviewer points out that distributional properties of the two forms can be explained in semantic terms by saying that short adjectives are used both attributively and predicatively since they are obligatorily non-specific, whereas long adjectives are used only attributively due to their specific (indefinite or definite) reading. Still, we can ask the following

(3) a. Marko je star BCS
m. is old-SHORT
'Marko is old.'

b. Marko je sta:ri:
m. is old-LONG
'Marko is the old one.' (≠Marko is old)

(4) Marka su zamišljalistara/*sta:rog
m.acc. aux imagined old-SHORT/-LONG
'They imagined Marko old.'

Semantics. In BCS (as well as in OCS), the attributive use of the two forms differs with respect to referential interpretation of the noun phrase hosting the relevant adjectival form. Noun phrases with long adjectives are interpreted as specific (in Enç's 1991 sense); whether they are indefinite or definite depends on the presence or absence of other determiner-like elements.[6] Those containing short adjectives are obligatorily non-specific (hence indefinite); e.g. *(jedan) plav kišobran* ((one) blue$_{short}$ umbrella – 'a blue umbrella'), *plavi kišobran* (blue$_{long}$ umbrella – 'the blue umbrella'), *jedan plavi kišobran* (one blue$_{long}$ umbrella – 'one of the blue umbrellas').

Variation and change. Not all BCS adjectives have short forms. This correlates well with the fact that such adjectives are excluded from the predicative use (Aljović 2000 for BCS; Corbett 2004; Timberlake 1993 for Russian). Besides, the short-long distinction is subject to dialectal variation and change. One illustration of the latter is the fact that nominal inflections exist only in masculine and neuter singular contexts in BCS. Consequently, many syncretic forms exist although the language developed some other (mainly prosodic) means to distinguish the two adjectival forms.

In this paper, we will not be concerned with the last two points.

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question: Why should short adjectives be "non-specific", and long adjectives "specific"? It is clear that these are not intrinsic properties of the two forms (i.e. we are not dealing with two different adjectives). Moreover, the short and long forms are related inflectionally, not derivationally. Therefore, it is tempting to trace down their semantic and syntactic properties to their morphological properties, more specifically to the difference between the long and the short (Case-Number-Gender) inflections. In Aljović (2000 Chapter 2) I propose an account whereby different semantic, syntactic and morphological properties of short and long adjectives in BCS reflect the structural complexity of the noun phrase in which they appear.

6. See Aljović (2000, 2002) for more details and arguments. Very briefly, the indefinite interpretation must be signaled by an overt element such as *jedan* 'one' (*jedan stari konj* lit.: 'one old horse', meaning 'one of the old horses'). The absence of any overt element forces the definite reading (e.g. *stari konj* 'the old horse').

3. Short and long adjectives and the structure of the noun phrase

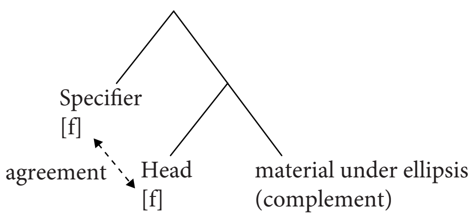
As has already been pointed out, the distinction between short and long adjectives is under change and is neutralized in some cases, a consequence being that some speakers have uncertain intuitions about it. However, it is possible to abstract away from the factors of variation and change and look at clearer cases to observe relevant contrasts.

Several noun-phrase internal processes reveal interesting contrasts between short and long adjectives, suggesting that the distinction between these two forms is grounded in syntax. More precisely, I will show that the short and long adjectival inflections correlate with different syntactic structures hosting attributive adjectives in BCS. This view is motivated by a systematic difference in the syntactic behavior of the two forms with respect to ellipsis, noun-phrase internal coordination, and ordering restrictions of multiple adjectives.

3.1 Ellipsis within noun phrases

Lobeck's (1995) account of ellipsis makes interesting predictions about possible configurations of attributive adjectives. According to Lobeck, the material under ellipsis corresponds to the complement of a head standing in an agreement relation with its Specifier. This is illustrated in (5):

(5)



The behavior of short and long adjectives contrasts quite sharply in ellipsis contexts: only long adjectives allow the head noun to be elided. Compare (6a) with the long form *plavi*, and (6b) with the short form *plav*:

(6) (Context: "Of all the parrots that we saw in the zoo...")

a. Najviše mi se dopao plav-**i**:.
most me.DAT SE liked blue.NOM.SG.M-NOM.SG.M
'I liked the blue one best'

b. *Najviše mi se dopao plav.
most me.DAT SE liked blue
'I liked a blue one best'

The data in (6a/b) show that an agreeing adjective, i.e. agreement alone, is not sufficient to license ellipsis: the short adjective in (6b) inflects for case-number-gender, however, it does not allow ellipsis.[7] Assuming Lobeck's approach sketched in (5), the contrast between long and short adjectival forms can be captured by positing a structure where a long adjective occupies the specifier position of a functional head of the noun phrase as depicted in (7a). Since short adjectives do not license ellipsis, a natural next step is to suppose that they occupy a different position: they cannot sit in the specifier of a head licensing ellipsis. They could be assumed to be adjoined to a maximal projection, or to occupy the specifier of the head hosting the noun itself. In either case they would be unable to license ellipsis of the following noun. I will adopt the view argued

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7. An anonymous reviewer points to a possible contrast illustrated by the data in (ia) and (ib):

(i)	a.	*Najviše	mi	se	dopao	jedan	tamno	plav**i**.
		most	me.DAT	SE	liked	one	dark	blue.NOM.SG.M- NOM.SG.M
		'I liked a/the blue one best'						
	b.	Najviše mi se dopao jedan tamno plav.						

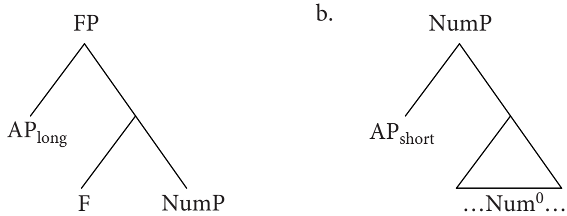
As we can see, in the presence of an intensifier such as *tamno* 'dark' the sentence in (ia) containing a long adjective is ungrammatical, while that in (ib) with a short adjective is acceptable. I suspect that the contrast in these two examples does not concern the phenomenon of ellipsis. A possible explanation of the judgements in the above data could be along the following lines: Aljović (2000) observed that intensifiers are not always natural with long adjectives, and this is independent of the phenomenon of ellipsis (cf. *jedan jako/vrlo/veoma/naročito interesantan/??interesantn**i** film*, 'a very/especially interesting film'). The example (ia) is thus independently unacceptable due to the combination 'intensifier+long adjective'. On the other hand, the acceptability of (ib) seems not to be due to the presence of the intensifier *jako* since the ellipsis is acceptable, although somewhat marginally, in (ii) as well:

(ii) ?Najviše mi se dopao jedan plav.

It is possible that in (ii) we are not dealing with the same kind of elliptical construction at all. A possible explanation could be that the adjective *plav* in (ii), i.e. *jako plav* in (ib), is the visible part of an adjectival predicate, cf. *jedan (papagaj koji je) plav* 'one (parrot which is) blue'. Crucially such a reading is facilitated by the presence of a determiner-like element, *jedan* (one) in (ib) and (ii); cf. its unavailability in (6b). This would explain the short form of the adjective in the above examples. In summary, I think that the contrast illustrated in (ia–b) does not seriously challenge the conclusions concerning the behavior of adjectives in ellipsis contexts reached in Section 3.1 above.

for in Aljović (2000) that the maximal projection in question is the Number Phrase (henceforth NumP).[8]

(7) a. b.

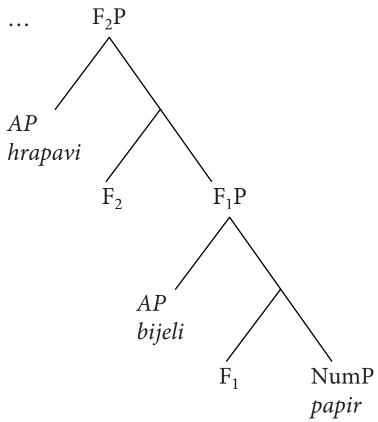


Moreover, in a series of stacked long adjectives every adjective is able to license the ellipsis of the material to its right. This suggests that there is a potential head licensor between any two long adjectives preceding the head noun. Consider the data in (8):

(8)	a.	tanki	hrapavi	bijeli	papir,	a	ne	debeli	[~~hrapavi bijeli papir~~]			
		thin	rough	white	paper,	and	not	thick				
	b.	tanki	hrapavi	bijeli	papir,	a	ne	debeli	glatki	[~~bijeli papir~~]		
		thin	rough	white	paper,	and	not	thick	smooth			
	c.	tanki	hrapavi	bijeli	papir,	a	ne	debeli	glatki	žuti	[~~papir~~]	
		thin	rough	white	paper,	and	not	thick	smooth	yellow		

Given this, the structure of the noun phrase above NumP containing long adjectives can reasonably be thought of as a series of functional heads hierarchically organized in a way depicted in (9):

8. Two major reasons for considering that the maximal projection in question is NumP are (1) interpretive properties of noun phrases modified (exclusively) by short adjectives: such noun phrases are always indefinite nonspecific (see Aljović 2000: Chapter 2 for the view that such noun phrases do not contain higher functional layers, such as various FPs hosting long adjectives), and (2) the fact that the adjective adjoined to NumP (or occupying its Spec) will never be able to acquire an extra agreement marker since in (7b) there is no source for such a marker, Num^0 being occupied by the noun itself (see also Section 4 below). The question of whether short adjectives are adjoined to, or occupy the Spec of NumP will not be touched upon in more detail here since nothing in the present analysis hinges on the choice between these two options. Following Aljović (2000), I assume that the functional projection Number Phrase dominates the lexical projection of Noun Phrase (NP) in BCS; the reader is referred to Aljović (2000), Chapters 2 (Section 2.5.2) and 4, for detailed arguments supporting this view.

(9) 

Summarizing this section: on the basis of the data illustrating elliptical noun phrases in (6–8), I propose to analyze BCS long adjectives as occupying specifier positions of functional heads above the head noun (i.e. above NumP). Short adjectives must be analyzed as being adjoined to (or as occupying the specifier of) NumP. This configurational difference between the two forms of attributive adjectives in BCS allows us to understand why only long adjective can license ellipsis.[9]

3.2 Coordinated adjectives

The existence of a syntactic difference between the two adjectival forms is further revealed by the interpretive properties of a special case of coordinated structures where two xNPs (extended NPs: NPs containing some larger nominal constituent such as NumP) are coordinated under a common determiner. Such coordinated structures are open to two different interpretations illustrated by (10) and (11). In (10) the two conjuncts refer to one individual (the *joint* reading) – under the most natural interpretation (note the singular verbal agreement). However, this is not obligatory: the same structure can be interpreted as referring to two individuals as well. In (11) the coordinated structure refers to two individuals (note the plural verbal agreement) – this is the

9. Another point that I will not discuss here is the phrasal vs. head status of attributive adjectives. Regarding the phenomenon of ellipsis, there is nothing wrong about an adjective sitting in a head position while the material to its right undergoes ellipsis (although there remains the question of Spec-head agreement); ellipsis facts do not actually show that long adjectives should be APs rather than A^0 heads. In taking attributive adjectives to be phrasal elements, I follow the arguments presented in Aljović 2000: Section 2.3.1.

split reading, the only one available in this example (the examples and representations 10–13 are taken from Heycock & Zamparelli 2000).

(10) [My [friend and colleague]] was late. *joint reading*
(11) [My [father and grandfather]] were both sailors. *split reading*

Discussing semantic properties of this kind of noun phrase internal coordinated structures, Heycock & Zamparelli (2000, 2005) propose that a single syntactic structure underlies both readings: the basis for the split reading is the presence of two nouns (N) in the structure; according to H & Z, explaining the joint reading does not necessitate a different structure since it can successfully be accounted for in semantic terms. Without going into the technical details of their analysis, I am giving the essence of their semantic solution: the joint reading is the consequence of the fact that the two conjuncts may overlap in their denotations. Consider (12a/b):

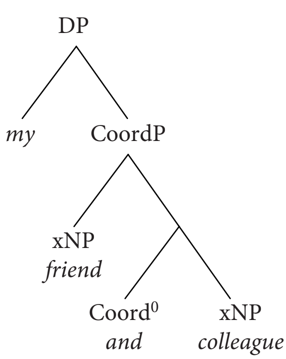
(12) a. friend = {{a}, {b}, {c}}
colleague = {{c}, {d}}
b. friend & colleague = {{a,c}, {a,d}, {b,c}, {b,d}, {c}, {c,d}}

The denotation of the conjunction (defined in terms of *union*) will contain a singleton, {c} in (12b). The singleton is at the source of the joint reading, the other sets are responsible for the split reading (which is also available). When the split reading is the only option as in (11), the denotations of the two conjuncts do not share any members; compare the denotations of *father* and *grandfather* in (13a). The denotation of the conjunction is represented by a set of two-members sets as in (13b). The absence of any singleton explains the unavailability of the joint reading:

(13) a. father = {{a}, {b}}
grandfather = {{c}, {d}}
b. father & grandfather = {{a,c}, {b,c}, {a,d}, {b,d}}

The crucial aspect of Heycock & Zamparelli's proposal concerns the fact that the (un)availability of the split and joint readings can be successfully handled in *semantic* terms, without positing any structural ambiguity. Under this approach the structure that underlies such conjunctions may be represented by (14):

(14)



3.2.1 *Long coordinated adjectives*

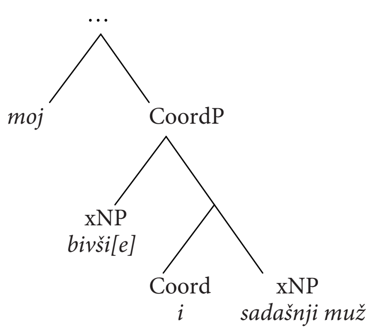
Effects similar to those observed for (10/11) above obtain in noun phrases with (seemingly) coordinated attributive adjectives. I first examine long adjectives. It should be borne in mind that we will be examining structures involving internal noun phrase coordination under a common determiner-like element. Consider now the data in (15a/b) with long adjectives (#: pragmatically odd or less probable):

(15) a. moj bivši i sadašnji muž
my former and present husband
'my former and my present husband' (*split*)
#'my former and present husband' (*joint*)

b. moj umorni i pospani muž
my tired and sleepy husband
(#) 'my tired and my sleepy husband' (*split*)
'my tired and sleepy husband' (*joint*)

In (15a/b) both readings are possible (though not equally probable for pragmatic/semantic reasons). If the split reading is available, this means that we have two coordinated nouns in the underlying structure. The availability of the split reading in (15a/b) thus motivates the structure in (16) where we have two conjoined nominal structures: i.e. two nouns modified by adjectives, under a common possessive, the first noun being elided (the identity of the higher projection or projections is irrelevant for our present purpose and will be ignored):

(16)



3.2.2 *Short coordinated adjectives*

The situation with short adjectives is quite different: when they are conjoined and followed by a noun, we obtain the joint reading only, as illustrated in (17):

(17) a. jedan spor i star motor
one slow and old motorcycle
'a slow and old motorcycle'

b. #jedan nov i star motor
one new and old motorcycle
#'a new and old motorcycle'

In the above examples, we have structures superficially similar to those in (15a/b). However, the split reading is unavailable here – the joint reading is the only option (as suggested by the translations). (For this reason the example in (17b) is odd: *new* and *old* are contradictory, but must be understood as qualifying a single motorcycle.) Now, remember that the existence of the split reading was the major motivation for postulating a structure where two nouns are coordinated (see e.g. 10, 11, 15). To explain the possibility of the joint reading we needed a semantic solution (see e.g. 12, 13) and the same structure that underlies the split reading. The question is now what kind of solution is needed to *exclude* the split reading. A natural answer seems to be the following: the examples in (17a/b) do not involve coordination between two nouns; instead, what is coordinated is actually two adjectives (much as in the English translations of these BCS noun phrases). This is expected since short adjectives do not license ellipsis, so there could not be an elliptical noun after the first adjective in (17a/b).

Summarizing, we have seen that short and long adjectives behave differently in superficially similar configurations involving two adjectives being conjoined in front of a noun and under a common determiner-like element. The contrast is the following: cases of coordination involving long adjectives only allow the split reading (cf. 15a/b); coordinated short adjectives are always interpreted jointly (cf. 17a/b). The explanation of these facts follows naturally from the two structures in (7a) and (7b): only the former allows ellipsis, and only in this case may two such structures be conjoined producing a sequence 'adjective & adjective+noun' where the first adjective is followed by an elliptical noun (as illustrated in 16) – thus satisfying the structural condition on the split reading. The structural position of short adjectives in (7b) does not allow NumP ellipsis, as we have seen in Section 3.1 above. Consequently two short coordinated adjectives are simply coordinated adjectives with no elliptical noun after the first adjective. This explains the absence of the split reading.

3.3 Ordering restrictions of multiple adjectives

The phrase structures proposed in (7a) and (9) for long adjectives, resemble Cinque's (1994) analysis of Romance: different adjectives in a multiple adjective series occupy the specifier positions of different nominal functional heads. This 'Spec' analysis was argued by Scott (2002) to be superior to a 'recursive adjunction' (type of) analysis, especially with respect to the problem of ordering restrictions of multiple adjectives. There are two related features of multiple adjectival modification. First, cross-linguistically, multiple attributive adjectives show basic, neutral, or unmarked, orders as opposed to marked as well as free orders. Second, when adjectival modification shows hierarchical properties, we observe a contrast between unmarked and marked orders (stacked adjectival modification). If there are no ordering restrictions, we find no hierarchical properties either (asyndetically coordinated adjectives; see Sproat & Shih 1988).

The two cases of multiple adjectives are illustrated in (18a/b) and (18c) respectively (examples adapted from Scott 2002: 92):

(18) a. big red cars
(neutral order, neutral intonation; hierarchical modification: *big among red cars*)

b. ?*red big cars
(marked order, focal/topic stress, hierarchical modification: *red among big cars*)

c. a luxurious, hot, steaming bath

In (18a/b) the adjectival modification shows hierarchical properties whereby each adjective further restricts the set defined by the adjective(s)+noun combination to its right; in other words, in a sequence 'ADJECTIVE – ADJECTIVE – ADJECTIVE – NOUN' the leftmost adjective does not modify only the head noun but the noun as modified by other intervening adjectives (compare the paraphrases for 18a and 18b). As indicated by the questionable status of (18b), this kind of modification contrasts neutral vs. marked orders; i.e. (18b) is acceptable only if the adjective *red* receives topic or focal stress thus producing the 'hierarchical' effect *red among big cars*. No ordering restrictions are observed for asyndetically coordinated adjectives and no hierarchical effects either: in (18c) the adjectives can appear in any order whatsoever, each adjective is said to form a separate intonational phrase and to modify the noun directly.

According to Scott (2002), adjunction does not offer a suitable means of representing the phrase structure of attributive adjectives since it does not imply any order for stacked adjectives; i.e. the contrast between (18a) and (18b) cannot be expressed if adjectives are analyzed as adjuncts. Moreover, under the view that all attributive adjectives should be adjuncts, the contrast between (18a/b) and (18c) is unexpected; instead, all adjectives should behave like those in (18c). For this reason Scott proposes that the Spec analysis (*à la* Cinque) is more appropriate for stacked modification, and that asyndetically coordinated adjectives should be analyzed as involving a different structure.

An interesting confirmation of this view comes from BCS long and short adjectives: only the former show ordering restrictions and hierarchical properties, while the latter can appear in any possible order without any hierarchical effects. This is illustrated in (19, 20):

(19) a. visoki debeli zid
visok-i debel-i zid
high-LONG(NOM.SG.M) thick-LONG(NOM.SG.M) wall
'the high thick wall'

b. ??debeli visoki zid

(20) a. visok, (i) debeo[10] zid
high-short(nom.sg.m) and thick-short(nom.sg.m) wall
'a high, (and) thick wall'

b. debeo, (i) visok zid
'a thick, (and) high wall'

In (19) there is a contrast between the orders in (a) and (b): with a neutral intonation, only (a) is natural and unmarked, (b) is acceptable if understood as marked (with focus/topic intonation of the leftmost adjective, implying different hierarchical properties, i.e. 'the thick one among high walls', or with comma intonation and no hierarchy at all[11]). In (20), the orders (a) and (b) are equally acceptable and do not contrast in any way. Modification by long multiple adjectives shows all properties of stacked adjectives, while short multiple adjectives behave as asyndetically coordinated adjectives.

It is now important to correlate the following two observations about long adjectives: First, long adjectives have independently been shown to occupy the Spec positions of distinct functional heads; second, it is precisely these adjectives that show ordering restrictions – a major reason according to Scott, not to consider such adjectives as adjuncts. BCS has short adjectives that are formally different and that have a different syntactic behavior (i.e. a behavior that cannot be captured by the Spec analysis) – it is precisely these adjectives that do not show ordering restrictions. Thus, the facts about ordering of multiple adjectives further motivate the structural difference expressed in (7a) and (7b) between long and short adjectives in BCS.

Furthermore, the data in (21a/b) suggest that long adjectives cannot be asyndetically coordinated at all:

(21) a. jedan dugi, visoki, (i) debeli zid
one long high and thick wall
'a long high thick wall' or 'a long, a high, and a thick wall'

b. jedan debeli, dugi, (i) visoki zid
'a thick, long, and high wall' or 'a thick, a long and a high wall'

10. *Debeo* is the (short) form resulting from vocalization of *-l* of the underlying form *debel*.

11. An anonymous reviewer points out that examples parallel to (19b) could be acceptable and that the contrast in (19a/b) is rather weak. In a scrambling language such as BCS it is normal not to find "black-and-white" contrasts regarding word order restrictions. The marginality of (19b) cannot be felt as strongly as that of the English example in (18b), but it *can* be felt that the unmarked and most neutral word order is that of (19a) for BCS (see also Scott 2002).

It is possible to pronounce a series of long adjectives with comma intonation and thus change their order; however, we do not get a case of asyndetically coordinated adjectives as shown by the interpretive properties of the noun phrases in (21). Remember now that coordinated short adjectives in front of a noun *never* trigger the split reading of the noun phrase. In (20a/b) above we have such a case: the noun phrases are interpreted jointly. Thus, in (20a/b) (as in 17a/b) the first adjective is not followed by an elliptical noun, i.e. these noun phrases do not contain two coordinated nouns – a necessary condition for the split reading. However, the examples in (21a/b) do have the split readings. This means that the structure underlying the noun phrases in (21a/b) must be different from the structures underlying the noun phrases in (20a/b) or (17a/b). In other words, in (21a/b) we have a structure of coordinated nominal projections where the first two nouns have been elided ([*jedan* [*dugi ~~zid~~*] [*visoki ~~zid~~*] [*debeli zid*]]), and not a structure involving three coordinated adjectives in front of a single noun. As we have seen in Section 3.2, only the former type of structure will produce the split reading, unlike the latter which will exclude it.

The fact that the structures in (21a/b) do not actually involve coordinated adjectives could suggest that long adjectives cannot be coordinated. Why should this be so? A standard assumption about a coordinating structure is that the two conjuncts must be complete phrases. If true, the fact that long adjectives cannot be coordinated could be due to their not being full phrases. A view of adjectival agreement presented in the next section will be able to predict and explain the above observations about non-coordinating long adjectives.

4. Agreement of attributive adjectives and (double) agreement inflections

In this section I discuss the source of the long (pronominal) marker. I will show how the structures in (7a) and (7b) can be used in a conceptually attractive way to explain the morphological difference between the short (nominal) and the long (pronominal) inflection, as well as the puzzle of seemingly double agreement of long adjectives. The formal notions which will be used for the discussion and description of adjectival agreement are the relation Agree, (non)interpretable features, and defective vs. full phi-feature sets (see Chomsky 1998, 1999).

4.1 The puzzle: Double agreement?

Adjectives are commonly assumed to have their own set of phi-features (phi-set). In one way or other, some piece of inflectional morphology will have to realize this phi-set in an inflectional language like BCS. Recall now the Old Church Slavonic case

(repeated below in 22a/b) where two pieces of morphology (i.e. two inflections) appear together on a long adjective:

(22)	a.	star -a old - GEN.SG.M/NT.nominal		*- short form*	OCS
	b.	star -a old -GEN.SG.M/NT.nominal	-jego -GEN.SG.M/NT.pronominal	*- long form*	

The question raised by the Old Church Slavonic data is the following: what do the two inflections in (22a) realize? Since these inflections are formally different, it seems natural to assume that they spell out two phi-sets. Importantly, the two phi-sets express agreement in case, number and gender with the head noun (i.e. both *-a* and *-jego* realize exactly the same case-number-gender set: genitive, singular, masculine/neuter). The only difference between them, expressed in traditional terms, is that *-a* is nominal, and *-jego* is pronominal. In other words, the former pertains to the declensional paradigm which spells out phi-features on nouns, the latter is a pronoun (by its origin). The central question of the puzzle is thus to understand how an adjective can agree twice with the same head noun.

Let's turn to the BCS data now, which are less transparent: all we can see is that a short adjective appears with the nominal inflection, and a long adjective appears with the pronominal inflection. Nevertheless, masculine singular forms actually contain a short adjective plus an extra (pronominal or long) inflection. Compare genitive and nominative of *star* 'old' in masculine singular:

(23)	a.	star-a old- GEN.SG.M.(SHORT)	sta:r-og(a) old- GEN.SG.M.(LONG)	BCS
	b.	star-Ø old- NOM.SG.M.(SHORT)	sta:r-i: old- NOM.SG.M.(LONG)	

Although in (23a) we do not actually see the nominal inflection within the long form, in (23b) the long form could be said to contain the *inflected* short form *star*, since this form realizes nominative singular masculine. Therefore, even if BCS doesn't show it as transparently as Old Church Slavonic, I will assume that its long adjectives contain two inflections, or more precisely agree twice.[12] In what follows I will discuss possible analyses of the presence of two agreement markers on adjectives.

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12. Some independent morphological and phonological facts seem to support this view. First, there is important formal similarity between the long adjectival inflection, the inflections appearing on personal pronouns, and 3rd person clitics, as illustrated in (i, ii):

(i) nje-**ga**
3M-3ACC/GEN.SG.M
'him'

4.2 The analysis of muliple agreement

There are three possible morpho-syntactic views that could explain the presence of multiple agreement markers. I will examine these in turn.

Different phi-sets. On the basis of BCS data alone, one way to deal with different morphological realizations of adjectival inflections could be to assume that adjectival phi-sets are somehow different with respect to predicative vs. attributive use. However, this view would imply a serious conceptual problem: different phi-feature sets should be specialized for these different syntactic uses. Furthermore, Old Church Slavonic

(ii) **ga** (3rd person masculine singular clitic, Acc, Gen)
'him'

The resemblance with the inflection of the long adjective in (23a) -*oga* is significant: we can recognize the *ga* part (the actual pronominal inflection), and the *o* which precedes resembles the *a* in the OCS contracted form *starago* (<*staraego* < *starajego*). This (unchanging) *o* could be the remnant of the nominal inflection.

Another piece of evidence concerns cases where the distinction between the short and long forms is heard as a prosodic difference (this is especially true of Bosnian) between the pitch-accent values and/or vowel length of the adjectival base. Compare the adjectival forms in (iiia/b):

(iii) a. st**a**r-oj (short rising pitch accent)
old-DAT.F.SG(SHORT)

b. st**a:**r-oj (long falling pitch accent)
old-DAT.F.SG(LONG)

Although, we "see" only one inflection, we are able to distinguish the two adjectival forms in (iiia) and (iiib) by prosodic means. Importantly, all the short and long forms of *star* (i.e. *all* its case-number-gender forms) differ in this systematic way. One way to explain this difference is to assume the existence of an extra inflection in the long form whose presence triggers the prosodic change (the short rising becoming the long falling accent value). This would mean that an extra inflection is present, although not transparently, in (iiib) but not in (iiia). A final piece of evidence suggesting the presence of two inflections in a long adjective comes from those case contexts where the inflection is realized by a single vowel; consider (iva/b):

(iv) a. star-**a**
old-NOM.F.SG(SHORT)

b. sta:r-**a:**
old-NOM.F.SG(LONG)

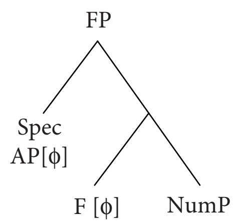
In the forms in (iv) the inflections differ alongside the pitch-accent of the base: the short inflection is realized by a short vowel [a], and the long by a long [a:], as if there were two *a*'s (i.e. two inflections) fusing into one long *a*.

poses a serious challenge to this analysis since we need to explain how two (different) agreement inflections can appear on adjectives used *attributively*.[13]

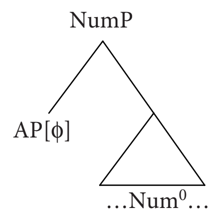
One vs. two phi-sets. It seems quite natural to think that the two inflections appearing on long adjectives realize two phi-sets. If so, we could assume that adjectives can appear with one or two phi-sets. However, the assumption that lexical items can appear with one or two sets of identical features is not unproblematic. Saying that attributive adjectives can or should appear with two phi-sets instead of one, or vice-versa, would be a stipulation.

Two phi-sets originating from different sources. This is a variant of the preceding view since two inflections should be considered as corresponding to two phi-sets. However, to avoid the stipulatory nature of the previous view, I will use the structures proposed in (7a) and (7b) which offer a means of understanding the presence or the absence of an additional inflection on an adjective in a simple way. This is illustrated in (24a/b):

(24) a.



b.



OCS	star -a	-jego	star -a
BCS	sta:r-Ø	-i	star -Ø

As shown by the structure in (24a), we have two separate phi-sets, one belonging to the adjective, the other to the head F whose Spec hosts the adjective. A long adjective is the result of an extra phi-set (inflection) coming from the functional head F and not from within the adjective itself. In other words a long adjective is distributed over F and its specifier, which means that it is not a constituent. Returning to the puzzle of double agreement, this view resolves the problem in a conceptually attractive way: long adjectives do not agree twice with the head noun, they (their phi-set) agree once

13. Besides, in BCS the pronominal inflection can actually appear in predicatively used adjectives, the only exception being the nominative singular masculine long inflection *-i* (e.g. *stari* 'old'). For example in the sentence *Mi ga jedemo sirovog* 'we eat it raw', the adjective *sirovog* appears with the pronominal inflection although it is used predicatively.

with the (phi-set of the) functional head F, the latter being the source of the extra (pronominal/long) inflection.

As for short adjectives, the structure (24b) provides no source for an extra inflection, an adjective inserted in such a structure will never appear as "long".

There are also several other advantages of this third view. First, different morphological spell-outs of case-number-gender endings (nominal vs. pronominal) can be attributed to the difference between two phi-sets in (24a). Namely, the adjectival phi-set is defective and uninterpretable in Chomsky 1999's sense, consisting only in gender and number, but not person features (in other words, adjectives agree in gender and number, but not in person). The phi-set of F is a complete and interpretable one, containing the person feature as well. It seems reasonable to think that morphology could realize these phi-sets by means of different morphemes: the adjectival defective phi-set with the short, i.e. nominal, inflection, and the phi-set of F by the long, pronominal, inflection. This is consistent with the pronominal origin of this inflection and pronouns are generally taken to have complete sets of interpretable phi-features.

Another advantage of this view is that it explains why long forms do not appear predicatively, i.e. outside a noun phrase. If in predicative use an adjective is not embedded within a noun phrase, there will be no F head nor its phi-set which could produce the long inflection.

The proposed analysis also accounts for the fact that long adjectives cannot be coordinated: if a long adjective is distributed over a stretch of structure that is not a constituent, the unavailability of coordination follows naturally.

I will mention here one potential problem that involves left branch extraction of adjectives. If the above view that long adjectives are not constituents is correct, then we do not expect them to be able to move. However, in left branch extraction configurations they seem to be allowed to move; 't_i' is used to indicate the starting position of the adjective *sta:ru:*.

(25) <u>Sta:ru:</u>$_i$ sam prodao [t_i kuću]
old-LONG AUX(1SG) sold house
'I sold the old house'

Although I am not able at this moment to offer a conclusive answer to this problem, I will point to a similar example where a non-constituent seems to be able to "left-branch" move:

(26) <u>Onu sta:ru:</u>$_i$ sam prodao [t_i kuću]
that old-LONG AUX(1SG) sold house
'I sold that old house'

Even if (25) could be taken to indicate that a long adjective is a constituent after all (and that the analysis represented by (7a) or (24a) is not adequate), (26) clearly shows that non-constituents can indeed be left branch extracted. In other words, given the well-formedness of (26), we no longer need to consider the data in (25) as indicating that the extracted adjective is a constituent. What kind of "extraction" we are dealing with in (25, 26) is a question that lies beyond the aims and limits of the present paper, and must be left open for future research.[14]

5. Agreeing and non-agreeing adjectives in German

It is tempting now to look at the agreement properties of German adjectives from the perspective of the analysis of the Slavic data presented in the previous sections.

The agreement behavior of German adjectives poses a serious challenge to any theory of agreement that holds that adjectives simply agree. A German adjective takes different forms, as illustrated in (27a–d):

(27)

a.	Der	Hund	ist	klein			
	the	dog	is	small			
b.	Dieser	Mann	ist	alt			
	this	man	is	old			
c.	der	klein-**e**	Hund	(ein	klein-**er**	Hund)	
	the	small-AGR	dog	a	small-AGR	dog	
d.	der	alt-**e**	Mann	(ein	alt-**er**	Mann)	
	the	old-AGR	man	an	old-AGR	man	

The special feature of German adjectives is the fact that they show no agreement morphology when used predicatively (cf. 27a/b), but agree in the attributive position in (27c,d). In other words, German adjectives may or may not agree. In order to understand these facts, I would like to explore the following hypothesis:

(28) Adjectives can vary cross-linguistically in having or not having phi-features.

In light of this let us consider the German situation again. Do its adjectives have phi-features or not? One possibility is that they do, and that their phi-features must agree. If so, why aren't they spelled out when an adjective is used predicatively? The other possibility is that they do not have phi-features in which case the question is: what do agreement markers in attributively used adjectives stand for?

14. For an analysis of left branch extraction and its relevance for the structure of noun phrases see Bošković (2005).

The first possibility faces the problem of non-realization of phi-features in predicatively used adjectives. If German adjectives had phi-features, we would need some special solutions (mechanisms) to prevent their morphological realization (otherwise available in the language) when used predicatively. However, saying that a language capable of overtly realizing case, number and gender features on adjectives chooses not to do so would be an ad hoc solution.

Using the insights gained by the analysis proposed for BCS long adjectives, and working with the hypothesis that the adjectival category may vary cross-linguistically in having or not having phi-features, it becomes possible to adopt the second possibility: German adjectives do not have phi-features. The agreement morphology of attributive adjectives could come from a nominal functional head, somewhat like the extra (pronominal) inflection in BCS, giving rise to a German agreeing adjective.

Another argument in support of this view comes from facts related to ellipsis. In German (and Dutch), attributive adjectives allow ellipsis in much the same way as in BCS. We have seen that simple agreement of the adjective is not a sufficient condition to license ellipsis: short adjectives in BCS agree but do not license ellipsis. Thus saying that German adjectives have phi-features and agree would not be enough to explain the ellipsis facts. According to Lobeck (1995), what is needed is a particular structure (the one shown in 5 above). If a structure is independently needed to account for ellipsis, then it could also be used to explain the source of the agreement morphology in German.

Summarizing this section, I would like to say that German (non)agreeing adjectives seem to fit nicely into the analysis proposed for Slavic data accounting for long adjectival forms in BCS and Old Church Slavonic.

6. Concluding remarks

I have examined syntactic and morphological properties of long and short attributive adjectives in Bosnian/Croatian/Serbian. I showed that the distinction between the long and the short adjectival inflection correlates with two different structures of the noun phrase. This view is motivated by a systematic difference in the syntactic behavior of the two forms with respect to ellipsis, noun phrase internal coordination, and ordering of attributive adjectives. The view makes it also possible to explain the morphology of the two inflections. Thus, morphological and syntactic properties of BCS attributive adjectives show that these adjectives do not necessarily involve a single syntactic structure language-internally.

Working with the hypothesis that the adjectival class can vary cross-linguistically in having or not having phi-features and that adjectives can acquire additional morphology from a functional head whose specifier they occupy, I tried to understand

the difference between agreeing and non-agreeing adjectives in German. Adjectives in this language may be assumed to lack phi-features, and the agreement morphology of attributive adjectives can be viewed as the spell-out of the phi-features of the functional head whose specifier hosts the adjective.

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The syntactic differences between long and short forms of Russian adjectives

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The present paper analyses the syntax of long- and short-form adjectives in Russian. I argue that the two morphological forms correspond to two syntactic structures. Long-form Russian adjectives appear as secondary predicates: they have an unbound theta-role that needs to be bound by a c-commanding DP. The phrasal projection of short-form adjectives, on the other hand, is a small clause with a nominative subject that bears the stem's external theta role; the subject raises to the spec-position of the copula projection with which the short-form small clause obligatorily merges. The main analytical challenge is posed by examples with a copula, where both LF- and SF-adjectives can appear. I give detailed empirical evidence from agreement, constituency and other constructions that in combination with a copula long-form and short-form adjectives enter into different syntactic configurations.

1. Introduction

This paper is concerned with the morphosyntax of the adjective phrase as projected to syntax from the adjective's argument structure and altered by productive, affix-driven operations. More specifically, we will be concerned with the morphological realization of adjective stems and the syntactic distribution of their phrasal projections.

The Russian adjective has two morphologically distinct paradigms corresponding to the long form (LF) and short form (SF). The main claim in the present paper is that the two morphological forms correspond to two different syntactic structures, namely a small clause structure and an adjunct secondary predicate. The largely complementary distribution of LF- and SF-adjectives lends support to this analysis. The main analytical challenge is posed by examples with a copula, where both LF- and SF-adjectives can appear. As I will argue in detail below, in combination with a copula LF- and SF-adjectives enter into different syntactic configurations.

The structure of the paper is as follows. In Section 2, I present the claim defended here in detail and spell out the background assumptions of the analysis. Section 3 is

devoted to a detailed description of the distribution of LF- and SF-forms in Russian. Section 4 gives the syntactic analysis proposed for LF- and SF-adjectives in Russian. Section 5 gives empirical evidence for the proposed syntactic distinction for LF- and SF-adjectives in combination with a copula. Section 6 discusses the attributive and predicational function of LF-adjectives in more detail. Section 7 concludes the paper.

2. The problem

The Russian adjective consists of a lexical stem **A**- and an adjectival suffix -**af**, each of which has its own argument structure. An 'adjective' is thus syntactically a complex head [**A-af**] whose argument structure is the product of the composition of the argument structures of its stem **A**- and suffix -**af.** It is the argument structure of adjective-forming suffixes that is responsible for the systematic changes in **A**-'s base argument structure that project to syntax as an adjective's 'syntactic paradigm'. We will be concerned in this paper with two members of this paradigm, namely, the long form (LF) and short form (SF).The representation of argument structure and the affix-driven operations that alter it are presented in Babby (2009); we will concentrate here on the syntactic projections themselves.

My main hypothesis is that the argument structure of **A**-stems canonically has two morphosyntactic realizations: the *adjective small clause*, which involves primary predication, as in (1a), and the *adjective secondary predicate* (s-predicate), as in (1b) (**i** is **A**-'s external theta role, [**A-af**] is the composite head of an adjective phrase, nP_i is the small-clause's subject noun phrase, and ⟨**i**⟩ denotes a theta role (here **i**) that has been 'satisfied'). An external theta role **i** can be satisfied by either being assigned to an nP, as in (1a), or by being bound by another theta role (see below).

(1) a. adjective small clause: $[_{afP}$ nP_i $[_{af'}$ A-af $[_{AP\langle i\rangle}$ t_A …]]]
b. adjective s-predicate: $[_{afPi}$ $[_{af'}$ A-af $[_{AP\langle i\rangle}$ t_A …]]]

The adjectival s-predicate phrase (afP_i) in (1b) has an *unlinked* external theta role **i**, i.e. it has an external theta role **i** but no subject nP. Since sentences with unlinked theta roles are ill-formed, afP_i's unlinked external **i** must be *vertically bound* by a theta role of the matrix clause; more specifically, a phrasal projection with an unlinked external theta role **i**, i.e. xP_i, must be *bound* in syntactic representation by an immediately dominating, c-commanding theta role; this binding relation between two theta roles is referred to as *vertical binding* (see Williams 1994 and Babby 2009 for details); an s-predicate's vertically-bound external theta role is represented as $afP_{\langle i\rangle}$. Adjective s-predicates function as vertically-bound *adjuncts*, occuring both nP-internally,

as in (6a), and nP-externally (see for example the depictive adjective *golaja*$_{LF.NOM.F}$ 'naked' in (7a)). Adjective small clauses obligatorily merge with a copula to derive sentences whose main predicator is a 'predicate adjective' (see (3)).[1]

Notice the distributional complementarity encoded in (1): the structure in (1a) must merge with a *functor* (i.e. a copula or auxiliary verb, which do not assign theta roles), while the structure in (1b) must merge with a *lexical* predicator, one of whose theta roles binds the s-predicate's unlinked **i**. The unlinked external theta role **i** of the s-predicate in (1b) is vertically bound, which will be referred to as 'secondary predication'; the small clause's subject nP_i raises to the spec-position of the copula projection (TP) to check its nominative case feature (see below); small clauses involve primary predication, i.e. **A**-'s external theta role **i** is assigned to its external nP, which projects to syntax as the small clause's nominative subject nP_i.

I am further assuming that the noun phrase has the same internal x-bar structure as other the lexical phrasal projections, i.e.: [$_{nP}$ [$_{n'}$ [N-n] NP], where N is the head of the encapsulated NP lexical projection, n is the head of the nP affix projection, and [N-n], like [A-af] in (1), is the result of head movement. Since Russian noun phrases have no articles or other *obligatory determiners* (e.g. possessive pronouns), they are 'bare' nPs, i.e. unlike English, not obligatorily contained in a DP projection: [$_{DP}$ [$_{D'}$ D nP]]. We shall see evidence below that the noun phrase is realized as nP or nP_i, parallel to afP and afP_i in (1), and to infinitival infP and $infP_i$ (see Babby 1998a and 2009: chap.4). nP_i is an *argument* and nP is the *predicate nominal*, i.e. it has the internal structure of a small clause and it merges with a copula; its nominative subject nP_i in spec-nP raises to spec-TP to check its nominative case feature: [$_{TP}$ [$_{nPi.NOM}$*Moj otec*] [$_{T'}$*byl* [$_{nPNOM}$ t_n [$_{n'}$*professor*$_{NOM}$]]] 'My father was (a) professor' (t_n is the trace of the subject [$_{nPi}$*moj otec*] 'my father', which raises from the spec-position of the predicate nominal nP to spec-TP). Speaking in more general terms, any lexical stem **X**- has two canonical morphosyntactic realizations, which depends on the argument structure of its affixal head -**x**: a small clause: [$_{xP}$ nP_i [$_{x'\langle i\rangle}$ [X-x] XP] and an s-predicate [$_{xPi}$ [$_{x'\langle i\rangle}$ [X-x] XP].

Russian is important for the hypothesis of two different syntactic structures for adjectival predicates because it has two distinct adjective-forming suffixes (more accurately, two different adjective declensions) which, I argue, morphologically lexicalize the two syntatic realizations of the adjective stem **A**- in (1a–b): see the *long form* (LF) and *short form* (SF) of the adjective in (2a–b). The LF suffix is responsible for the

1. I am not claiming that other types of small clauses obligatorily merge with a copula; see the evidence in Babby (2009: Chapter 4) that Russian subject-controlled infinitive complements of *lexical verbs* are s-predicates.

deletion of the lexical **A**-stem's external categorial head **N**, which leaves **i** unlinked; the SF suffix leaves **A**-'s external argument intact. (In what follows, the terms LF, s-predicate, and aP_i are synonymous.)

(2) a. SF adjective small clause: $[_{afP}\ nP_i\ \ [_{af'}\ [A\text{-}af_{SF}]\ \ [_{AP\langle i\rangle}\ t_A \ldots]]]$
b. LF adjective s-predicate: $[_{afPi}\ \ [_{af'}\ [A\text{-}af_{LF}]\ \ [_{AP\langle i\rangle}\ t_A \ldots]]]$

This hypothesis was first proposed in Babby (1975) and refined in a series subsequent articles (see Babby 1998b). Space does not permit me to discuss the ways in which my proposal differs from the many other analyses of the LF and SF.

The focus of our analysis of Russian adjectives will be the [subject + copula + adjective] sentence, which is illustrated in (3a–b) (*vkusn-* 'good = tasty' is the lexical **A**-stem). The predicate instrumental (PI) of the adjective in (3c) will not be included in our discussion (see Babby 2003a, 2009: chap. 5 for discussion of the relation of the LF, SF, and the predicate instrumental of adjectives).[2]

(3) a. SF: Vino bylo vkusn-o
wine:NOM.N was:N good:SF.NOM.N
'The-wine was good.'

b. LF: Vino bylo vkusn-oe
wine:NOM.N was:N good:LF.NOM.N.
'The-wine was good.'

c. PI: Vino bylo vkusn-ym
wine:NOM.N was:N good:LF.PI.N
'The-wine was good.'

Sentences like (3b) are of special interest because, given what was said above, they appear to involve a paradox: If LFs are the morphological lexicalization of the adjective s-predicate structure in (2b), which is our main hypothesis, how can *vino* be the subject of $vkusnoe_{LF}$ in (3b) if LFs by hypothesis do not license a subject nP_i? In other words, if s-predicates are defined as having an external theta role but no external nP to link it to, as I am claiming, the subject *vino* in (3b) is unlicensed.

My solution to this problem may appear initially to involve the replacement of one paradox with another, but, as I argue below on the basis of extensive empirical

2. In the glosses, the following abbreviations are used:

N = neuter	DAT = dative	TBC = theta binding chain
F = feminine	GEN = genitive	SG = singular
M = masculine	INST = instrumental	PL = plural.
NOM = nominative	PI = predicate instrumental	
ACC = accusative	CP = complementizer phrase	

evidence, no paradox is involved. I shall argue that *vino* is indeed the subject of the sentence in (3b), but it is not the subject of the LF *vkusnoe*, which is an *adjunct* in (3b), just as it is in all the other syntactic constructions in which it occurs (see below). In slightly different terms, I shall argue that *vino* is the subject of (3b) but *vkusnoe* is not the main predicator, and *vino* is thus not predicated of *vkusnoe*.

This solution entails that (3a) and (3b) have radically different syntactic structures. Before I spell out the details of the analysis in Section 4, I will begin by giving a more complete picture of the complementary properties of the LF and SF in the following section.

3. Long and short forms in Russian

Let us begin with two lists of properties that characterize LF- and SF-adjectives respectively (see 4 and 5 below). A Theta Binding Chain (TBC) is a string of nodes in a syntactic representation that involve immediately domination and are related by vertical binding and predication; we shall see below that TBCs play a crucial role in case agreement and control.

(4) Criterial properties of the LF:

a. it inflects for gender, number, and, case.
b. it can occur in *any case* because it always *agrees* with the nP_i head of the theta-binding-chain (TBC) in which it is vertically bound.
c. it has an unlinked external theta role **i**, which is what makes it an s-predicate;
d. it always functions as a adjunct (including (3b)).
e. it is *controlled* by the head of the TBC it is bound in; see the subject- and object-controlled depictive LFs in (7) and (9) below.
f. it always merges with a predicator, never with a functor, since its external theta role must be vertically bound and functors have no theta roles.

(5) Criterial properties of the SF:

a. it inflects for gender number, and case, but, unlike the LF, the SF occurs in the *nominative case only*; the nominative case here is thus 'inherent', i.e. specified in the SF's suffix's argument structure, and requires that SFs have nominative subjects. Thus SFs are 'agreed with' in case but, as dedicated predicate adjectives, do not themselves agree in case. In contrast, LFs obligatorily agree in case with the head of the TBC in which they are the tail, but are never agreed with.
b. it is always a primary predicate, i.e. predicate of a clause with a subject nP_i.
c. it always merges with a functor, never with a predicator.

The properties in (4) and (5) account for their complementary syntactic distribution: the SF can occur in only one configuration: it is the head of an adjective small clause whose nominative subject raises from spec-afP to the spec-position of the phrasal projection headed by the copula. In contrast, the LF, which is always an s-predicate (afP$_i$), has the following distribution:

- attributive (nP-internal) adjective, as in (6).
- subject-controlled depictive adjunct, as in (7) and (8).
- object-controlled depictive adjunct, as in (9).
- subject + copula + 'predicate LF' in (3b).

(6) The nP-internal realization of **A**-:

a. LF: [$_{nP:NOM}$ vkusn-oe vino]
good$_{LF.NOM.N}$ wine$_{NOM.N}$
'good wine'

b. *SF: [$_{nP:NOM}$ vkusn-o$_{SF.NOM.N}$ vino]

(7) Subject-controlled afP$_i$ depictive adjectives:

a. LF: Anna ljubit tancevat' pered zerkalom **golaja**$_{LF.NOM.F}$.
Anna$_{NOM.F}$ loves to-dance in-front-of the-mirror **naked**.
'Anna loves to dance in front of the mirror naked.'

b. *SF: Anna ljubit tancevat' pered zerkalom **gola**$_{SF.F}$.

(8) a. LF: On **p'janyj**$_{LF.NOM.M}$ izbival ženu.
he$_{NOM.M}$ drunk beat$_M$ wife$_{ACC:F}$
'He beat his wife$_{ACC.F}$ (when he was) **drunk**.'

b. *SF: On **p'jan**$_{SF.NOM.M}$ izbival ženu$_{ACC.F}$.

(9) Object-controlled afP$_i$ depictive adjectives:

a. LF: Ee uložili v postel' **odetuju**$_{LF.ACC.F}$.
her$_{ACC.F}$ put$_{PL}$ in bed dressed
'(Unspecified agent(s)) put her to bed dressed.'

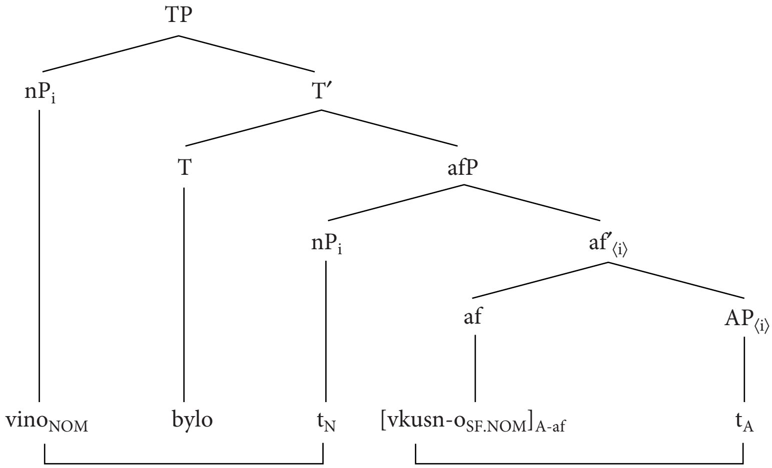
b. *SF: Ee uložili v postel' **odeta**$_{SF.F}$.

3.1 The syntactic analysis of LF and SF-structures

Let us begin our analysis with what is uncontroversial: the structure of the SF small clause in (3a) is schematically represented in (10). In a bottom-to-top derivation, first the lexical AP is built up: the **A**- stem's (*vkusn*- 'good') external theta role **i** is assigned under primary predication to its subject nP$_i$ (*vino*) in spec-afP, which is the maximal projection of the SF suffixal head -**af** (-*o*); the **A**-stem itself raises and adjoins to -**af** by

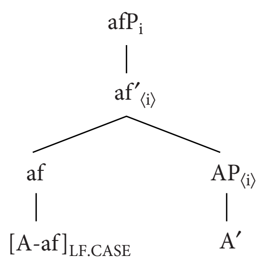
head movement, giving [$_{\text{A-af}}$ *vkusn-o*]. The SF small clause afP then merges with the copula *bylo*, which heads the sentence's TP functional projection, and *vino* moves from spec-afP to spec-TP, where it satisfies T's EPP requirement and checks its nominative case feature.

(10) SF-predicate



Since the LF has an external **i** theta role but no subject nP to assign it to, **i** passes up to the afP ([A-af]'s maximal projection or root node), creating the aP$_i$ s-predicate in (11), whose unlinked **i** is vertically bound by a proximate matrix theta role. If **i** is treated as a feature, it simply projects to the head's maximal projection along with its categorial and case features (see the Head-Feature Convention). The case feature on [A-af] in (11) is valued/checked by the case feature of the head of aP$_i$'s TBC (see below).

(11) LF s-predicate:



The following crucial syntactic complementary distribution derives from the structures in (10) and (11). The SF's syntactic projection afP obligatorily merges with a copula, which, in addition to expressing the sentence's tense, provides a landing site

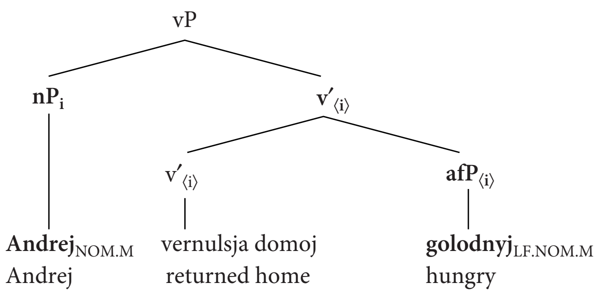
in its spec-position (spec-TP) for the SF's nominative subject nP_i *vino*. But the LF's aP_i syntactic projection obligatorily merges with a theta-role assigning predicator, one of whose spec-positioned theta roles (**i** or **j**) vertically binds its unlinked **i**, forming a complex predicate expression, as in (7)–(9). There are no well-formed sentences in which the phrasal projections of the LF and SF are not contained in higher lexical or functional projections.

Let us now look more closely at the syntactic structure of sentences with a subject-controlled depictive LF: see (12a) and its schematic representation in (13) (see (7) and (8)); only the lexical verb's vP projection is given for expository reasons. The SF cannot replace the LF in (12) since SFs are always small clauses whose nominative subject must be able to raise to spec-TP to check its nominative case feature; this is not possible in (12); SF small clauses cannot be controlled because PRO subjects cannot be nominative (see (12b)).

(12) a. Andrej vernulsja domoj$_{ADV}$ **golodnyj**$_{LF.NOM.M}$ (*golodenSF.M).
Andrej$_{NOM.M}$ returned$_M$ home hungry
'Andrej returned home hungry.'

b. *Andrej$_i$ vernulsja domoj [$_{afP}$ PRO$_i$ [$_{af'}$**goloden**$_{SF.NOM}$]].

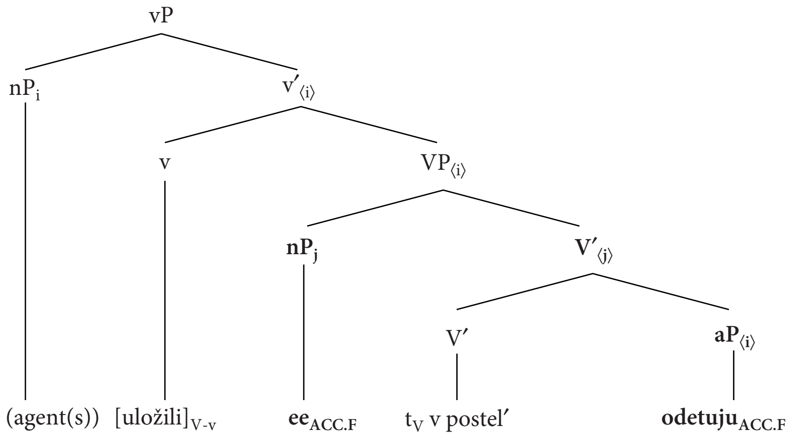
(13)



The afP_i depictive adjunct *golodnyj* in (13) is vertically bound by matrix $\mathbf{v'_i}$ (whose **i** is the external theta role of *vernulsja*), and **i** of $\mathbf{v'_i}$ is assigned to the matrix subject $\mathbf{nP_i}$(*Andrej*), creating the boldface TBC with **Andrej** as the head and **golodnyj**$_{LF}$ as the tail. This structure explains why **golodnyj** is nominative in spite of the fact that it is a constituent of vP: s-predicates (LFs) always agree in case with the head of the their TBC. *Andrej* subsequently moves from spec-vP to spec-TP. *Golodnyj* is 'subject controlled' because the matrix subject *Andrej* is the head of its TBC. Object-controlled LF depictive adjuncts work essentially the same way, only here the head of depictive afP_i's TBC is the accusative direct object in spec-VP (see *ee*$_{ACC}$'her' in (15), which is the structure of (14) (=(9b)):

(14) Ee uložili v postel' odetuju$_{LF.ACC.F}$.
her$_{ACC.F}$ put$_{PL}$ in bed dressed
'(Unidentified agent(s)) put her to bed dressed.'

(15)



In the object-control structure in (15), **aP$_i$** is adjoined to **V′$_j$** (not to **v′$_i$**, as in (13)), and the depictive LF *odetuju* 'dressed' thus agrees in case with and is controlled by the accusative matrix direct object **ee** 'her', which is the head of the TBC in which it is vertically bound. More specifically, **aP$_i$** (*odetuju*) is vertically bound by j of **V′$_j$**, and j is assigned to the direct object **nP$_j$** (*ee*). These two derivations capture the close relation between binding, control, and 'long-distance' case agreement in terms of the boldface TBCs in (13) and (15).[3]

We can now turn to the focus of this paper, namely, the 'predicate' LF in (3b) (*Vino bylo vkusnoe*$_{LF}$ 'The-wine was good'). This example has a subject [*vino*]$_{NPi.NOM}$ and does therefore appear to be anomalous with respect to all the other uses of the LF, which involve adjunction; notice further that *vino* in (3b) can also not be the subject of *bylo* since copulas are functors, which do not assign theta roles and do not have their own arguments (see Williams 1994): copulas and auxiliary verbs 'inherit' their subject nPs from the lexical predicators they compose with.

In what follows, I argue that (3b) is not anomalous, i.e. *vino* in (3b) is not the subject of the LF *vkusnoe,* and that *vkusnoe* has the same adjunct function here as it does in all the other syntactic constructions in which it occurs.

This analysis depends on there being a 'hidden' xP between TP and the LF (afP$_i$) *vkusnoe* 'good' that is the sentence's main predicate.

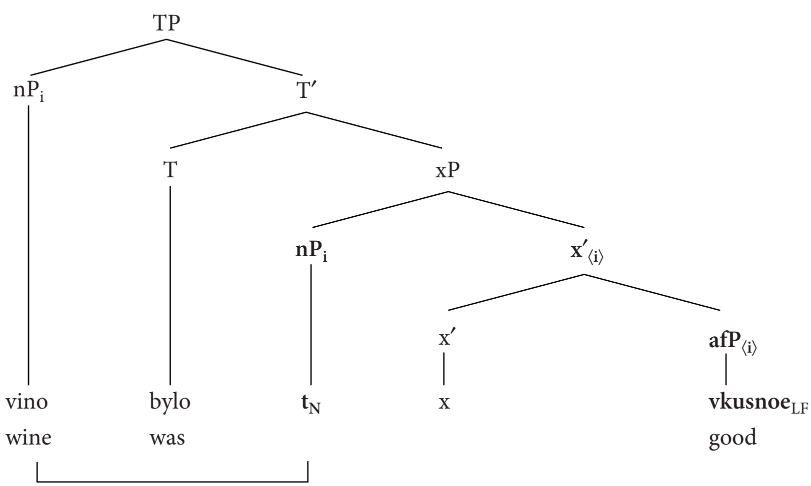
3. It is important to bear in mind that am not claiming that all instances of 'control' can be reduced to TBCs: I argue in Babby (1998a, 2009) that object-controlled infinitive complements are infinitive small clauses with PRO subjects (i.e., $[_{infP}\ [_{nPi}\ \text{PRO}_{DAT}]\ \text{inf}'_{\langle i \rangle}])$, which are *antecedent-bound* by the matrix direct object: TBCs, whose links involve vertical binding, cannot by definition cross sentence boundries. I do claim that 'control' *can* be reduced either to vertical or to antecedent binding.

I will demonstrate that there is a ‘hidden’ projection xP in (3b) between the copula *bylo* ‘was’ and the LF (afP$_i$) *vkusnoe* ‘good’, which means that: (i) xP is the main predicate in (3b) and the subject *vino* receives its external theta role from x not from [$_{aPi}$*vkusnoe*], which is an adjunct; (ii) *vino* is the subject of xP and thus merges in spec-xP; (iii) xP is a small clause; (iv) *vkusnoe* is an adjunct that modifies the head of xP; (v) the ‘predicate LF’ in (3b) should appear to behave syntactically like an xP because it is its only overt constituent; (vi) xP is ‘hidden’ only in the sense that its head is canonically null; (vii) the difference in meaning between (3a–b) derives directly from the different morphosyntactic structures of (3a–b) to be proposed below.

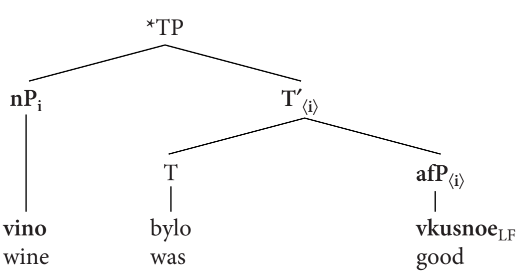
Our next step is to determine the lexical category of xP and to present evidence that there really is a null-headed xP in (3b) that is absent in (3a).

In Section 4 below I will present extensive empirical evidence that there is indeed an xP between TP and afP$_i$ in (3b) that is not present in (3a) (*Vino bylo vkusno*$_{SF}$) and, therefore, that the correct syntactic structure of (3b) is schematically represented in (16), not (17), in which [$_{nP}$ *vino*] is not licensed; the final form of (16) will be presented below in (29), after we have identified the lexical category of xP. Note that [$_{afP\langle i\rangle}$*vkusnoe*$_{LF}$] is in an adjunction configuration is (16), as it is in all the the syntactic structures in which it occurs.

(16)



(17)



The xP in (16) has the following properties: (i) *vino* is the raised subject of xP, which is thus a small clause, i.e. $[_{xP}$ $[_{nPi}$ *vino*] $x'_{\langle i \rangle}$]; (ii) [*vkusnoe*]$_{aPi}$ adjoins to and is vertically bound by x'_{i}, whose head x is thus the head of $[_{aPi}$ *vkusnoe*]'s TBC; (iii) *vkusnoe* should be interpreted as a modifier of x; (iv) *vkusnoe* thus agrees in case with the head x, not with *vino*; (v) x must have a case feature if *vkusnoe* agrees with it, a fact which significantly simplifies the task of determining x′s lexical category; (vi) x is canonically (but, as we shall see below, not obligatorily) null; (vii) the structure in (16) predicts (correctly, as we shall see below) that 'predicate LFs' in subject + copula + LF constructions like (3b) should appear to have the syntactic properties and distribution of an xP containing it because the LF is canonically its only overt constituent.

In the following sections I will present robust empirical evidence that xP in (16) is a predicate nominal nP, which means that 'predicate LFs' in sentences like (3b) are nP-internal modifiers of the head [N-n] and thus behave syntactically like *predicate nominals*; we saw in (6) that only LFs occur nP-internally. In other words, the evidence presented below demonstrates conclusively that the following two sentences have the same syntactic structure (boldface **n** represents the null head of the predicate nominal nP): *Vino* $[_{nP}$ $[_{afP\langle i \rangle}$*vkusnoe*] **n**] 'The-wine (is) good' and *Vino* $[_{nP}$ $[_{afP\langle i \rangle}$*vkusnyj*$_{LF.NOM.M}$] *napitok*$_{NOM.M}$]] 'Wine (is a) good drink.'

As noted above, I am assuming that nP has essentially the same x-bar phrasal architecture as 'verb phrases' (vP) and 'adjective phrases' (afP), i.e. a NP lexical projection contained in a nP affixal projection. The 'subject' of the predicate nominal nP merges in spec-nP and raises to the spec-position of the copula (spec-TP) in order to check its nominative case. Note that, according to this analysis, the structure and derivation of predicate nominals and SFs are parallel: both involve a small clause that composes with the copula *byt'* 'be' and whose nominative subject raises to spec-TP to check its nominative case feature and T's EPP requirement (see Lavine and Freidin 2002); I am assuming that the copula is the overt head of TP. Thus a 'predicate nominal', which is a nP small clause with a nominative subject, is represented in (18a); an 'argument nominal' is an nP_i, i.e. a noun phrase that functions as an argument, not a predicate, is represented in (18b): nP_i enters into a binding (checking) relation with the verbal predicate's corresponding theta role (see Williams 1989, 1987). Compare (18a–b) and (19a–b).

(18)	a.	'predicate nominal':	$[_{nP}$	nP_i	$[_{n'}$ $[N\text{-}n]_n$ NP]]
	b.	'argument nominal':	$[_{nPi}$		$[_{n'}$ $[N\text{-}n]_n$ NP]]
(19)	a.	SF small clause:	$[_{afP}$	nP_i	$[_{af'}$ $[A\text{-}a]_{SF}$ AP]]
	b.	LF s-predicate:	$[_{afPi}$		$[_{af'}$ $[A\text{-}a]_{LF}$ AP]]

The $afP_{\langle i \rangle}$-in-predicate-nominal-nP analysis of the 'predicate LF' in (3b) appears to be correct because it is both explanatory (i.e. makes an impressive number of

empirically verifiable predictions) and requires no additional theoretical assumptions. More specifically:

(20) a. If (3b)'s structure is: $[_{nPi}$*vino*] + *bylo* + $[_{nP}$…**n** … $[_{afP\langle i\rangle}$*vkusnoe*]] (**n** = the null [N-n] head of nP), 'predicate LFs' should behave like predicate nominals.
b. [*Vino*]$_{nPi}$ in (3b) is the subject of the predicate nominal, not of $[_{afP\langle i\rangle}$*vkusnoe*].
c. Predicate nominals are small clauses and thus have nominative subjects which are assigned the head's external theta role **i**: *Otec$_i$ byl* $[_{nP}$ t_N $[_{n'\langle i\rangle}$*soldat*$_{NOM}$]] 'My-father was a-soldier.' *Otec*$_{NOM.M}$ 'father' raises from spec-nP to spec-TP.
d. 'predicate LFs' agree with the null head **n** of the predicate nP in which they are vertically bound. More specifically, $[_{afP\langle i\rangle}$*vkusnoe*] in(3b) is an adjunct: it 'modifies' the head **n** whose external theta role vertically binds it, which means that *vkusnoe* is the tail of the TBC of which **n** is the head. I am thus treating 'identification' as the nP-internal instantiation of vertical binding (see Grimshaw 1990:71).
e. If [$[_{nPi}$*vino*] + *bylo* + $[_{nP}$ t_n **n** $[_{afP\langle i\rangle}$*vkusnoe*]]] is the correct structure of (3b), as I am claiming, then our initial generalization holds: LFs in modern Russian are s-predicates (afP$_i$) that always function as controlled adjuncts.

Our hypothesis that the 'predicate LF' *vkusnoe* in (3b) modifies the null head of a predicate nominal nP is credible since it is common in Russian for the head of nP to be 'suppressed' (phonetically null), no matter what nP's function, when it is modified by an nP-internal LF, which 'redundantly' marks the head's gender, number, and case, thereby making the suppressed head easily recoverable. I am thus claiming that the null head of the predicate nominal containing the 'predicate LF' is just a special case of recoverable 'head suppression' and therefore neither construction-specific nor ad hoc (cf. Chomsky's notion of 'parallel constraints'; Babby 2003b). We see in the following examples that, although Russian head suppression has the same function as *one*-pronominalization in English, they are not entirely equivalent.

(21) a. Ee xolodnye kak led guby vstretilis' s ego $[_{nP}$ **pylajuščimi**$_{LF.INST}$]
her cold as ice lips met with his burning
'Her lips (which were) as cold as ice met with his $[_{nP}$ **burning** (lips/?ones)].'
b. $[_{nP}$ ee xolodnye kak led guby] vstretilis' [$[_{PP}$ s $[_{nP:INST}$ego $[_{afP\langle i\rangle}$ pylajuščimi] **n**]].

(22) a. Bol'šoj nož – $[_{nP}$ edinstvennyj **režuščij** $[_{PP}$ vo vsem dome]].
big knife only cutting$_{LF.NOM.M}$ in whole house
'The big knife (is) the only one/knife that cuts in the whole house.'
b. $[_{nP}$ bol'šoj nož] – $[_{nP}$ $[_{afP\langle i\rangle}$edinstvennyj režuščij$_{LF.NOM}$] **n** vo vsem dome].

(23) a. On brosil vzgljad na te neskol'ko stranic, kotorye,
He threw glance at those few pages which
predšestvovali [$_{nP}$ **vynutoj**$_{LF.DAT.F}$ im]. (*predšestvovat'* selects quirky dative case)
preceded removed him$_{INST}$
'He glanced at those few pages which preceded the one (that was) removed by him.'

b. .., kotorye predšestvovali [$_{nP.DAT}$**n** [$_{afP\langle i\rangle}$**vynutoj**$_{DAT.F.SG}$ im]].
which preceded removed him$_{INST}$

(24) U Anny našlis' i drugie motivy, [$_{PP}$ pomimo
at Anna were also other motives besides
[$_{nP}$ **n** [$_{aP\langle i\rangle}$**ukazannyx** vami]]].
indicated$_{LF.GEN}$ by-you
'Anna also had motives other than the ones indicated by you.'

(25) Anna vsegda brala pobobnye traty na sebja, daže esli
Anna always took similar expenses on self even if
[$_{nP.PI}$**n** **zainteresovannoj** v dele] byla [$_{nP.NOM}$ ne tol'ko ona sama].
interested$_{LF.INST.F}$ in matter was NEG only she herself
'Anna always took similar expenses upon herself, even if she was herself not the only one interested in the matter.'

(26) Xvost poxož [$_{PP}$ na [$_{nP.ACC}$**n** [$_{afP\langle i\rangle}$**oslinyj**$_{LF.NOM.M}$]]]
tail looks like donkey
'The-tail looks like a-donkey tail / a donkey's tail / *a donkey one.'

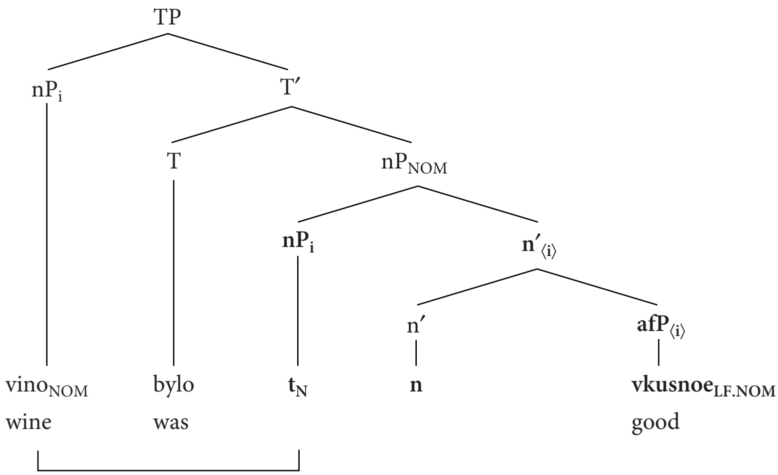
(27) On dokazal, čto [$_{PP}$ pomimo [$_{nP}$ **n rabovladel'českoj**$_{LF.GEN.F}$]], byla Amerika
he proved that besides slave-holding was America
borcov za svobodu.
of-fighters for freedom
'(lit.) He proved that beside the slave-holding one, there existed an America of freedom fighters.'

(28) On ženilsja-na devuške, ne imevšej za spinoj ni opyta aktrisy,
he married girl NEG having on back neither experience actress$_{GEN.F}$
ni [$_{nP}$ **kakogo**$_{LF.GEN.M}$ by-to-ni-bylo] voobšče. (L. Ulickaja)
neither any what-so-ever at-all
'He married a girl who had neither an actress's experience nor **any** (experience) at all.'

The sentences in (24), (26), and (27) provide crucial evidence that there must be a 'hidden' nP projection between the PP and afP$_{i}$ since only an nP can be the case-assigned complement of a preposition, i.e. whereas [[$_{PP}$ P [$_{nP.case}$ [N-n] afP$_{\langle i\rangle.case}$]] is well-formed, *[$_{PP}$ P afP$_{i.case}$] is not. Recall that a LF's case is *always* determined by agreement with the nominal head of its TBC.

The final syntactic structure of (3b) I am proposing is represented in (29) (cf. (16)).

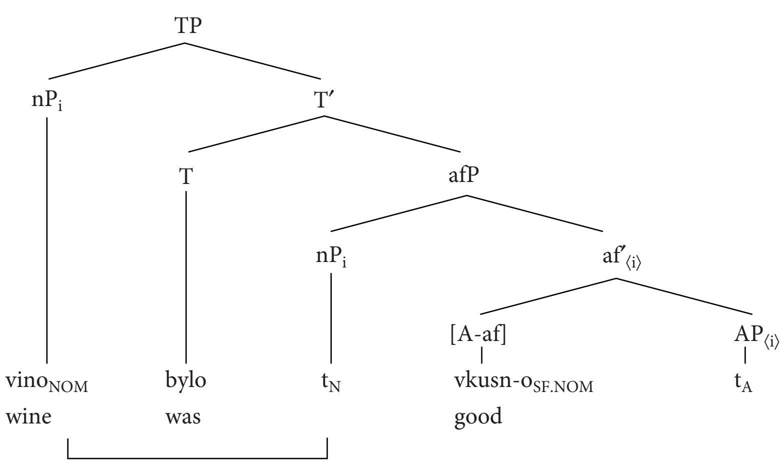
(29)



Compare the structure of the 'predicate-LF' in (29) to the structure of the SF in (10), repeated as (30). We see in (29) and (30) that, despite their superficial, linear [subject + copula + adjective] arrangement, the SF and LF in (3a–b) occur in radically different syntactic configurations: the 'predicate LF' is an nP-internal afP$_i$ that agrees in case with the head of its TBC, which is also the null head of the predicate nominal nP. The SF is never nP-internal.

But, on the other hand, the comparison of (29) and (30) also reveals that the syntactic structures and derivations of SF and 'predicate LF' sentences are parallel in some respects: both involve raising a nominative subject nP$_i$ from the spec-positon of a small clause (spec-nP in the case of LFs, spec-afP in the case of SFs) to the spec-TP position; T is lexically realized as the copula. This parallelism undoubtedly contributes to the mistaken impression that SF and 'predicate LF' sentences have the same [subject + copula + adjective] syntactic structures.

(30)



4. Evidence for the syntactic difference in copula constructions with LF/SF-adjectives

As detailed in Section 4, my main hypothesis is that **A-af**$_{\mathbf{SF}}$ and **A-af**$_{\mathbf{LF}}$ are morphological realizations (lexicalizations) of the afP small-clause and afP$_i$ s-predicate structures (see (19a–b)). The structures of the type subject + copula + SF/LF have the structures in (29) and (30), where the crucial difference is that the 'predicate LF' is contained in a predicate nP and the SF isn't. Below I present evidence that (29) is the correct structure of (3b) in the form of a series of diagnostics that detect nP constituency: 'predicate LFs' are predicted to behave like predicate nominal nPs and SF are predicted not to.

4.1 Diagnostic I: Agreement with *vy* 'you (polite)'

The following evidence supporting the structure proposed in (29) comes from the *number agreement* of SFs and 'predicate LFs' when the subject is *vy* 'you' (pl.)', which refers to one person in polite discourse (cf. *Sie* vs. *du* in German). Our hypothesis correctly predicts that the 'predicate LF' should pattern like a predicate nominal, which is *singular* even though *vy* is formally plural (see (31)); the SF should pattern like the plural copula since it is the main predicate (verbs are always plural when the subject is *vy*). This is precisely what we find: the SF is *plural*, whereas the 'predicate LF', like the overt predicate nominal *durak* in (31), is obligatorily singular even though the copula is plural:

(31) Vy$_{PL}$ (byli$_{PL}$) **durak**$_{NOM.M.SG}$ (*duraki$_{PL}$).
you (were) fool (*fools)
'You are (were) a fool.'

(32) a. LF: Vy$_{PL}$ (byli$_{PL}$) **umnaja**$_{LF.NOM.F.SG}$ (*umnye$_{LF.NOM.PL}$).
you (were) smart
'You are (were) smart.'

b. SF: Vy$_{PL}$ (byli$_{PL}$) **umny**$_{SF.NOM.PL}$(*umna$_{SF.NOM.F.SG}$).
you (were) smart
'You are (were) smart.'

(33) a. Vy byli$_{PL}$ [$_{nP}$ [$_{n}$**durak**$_{NOM.M.SG}$]]. (= (31))
b. Vy byli$_{PL}$ [$_{nP}$**n** [$_{afP\langle i\rangle}$**umnaja**$_{LF.NOM.F.SG}$]] (= (32a))
c. Vy byli$_{PL}$ [$_{afP}$ **umny**$_{SF.NOM.PL}$] (= (32b))

The two agreement patterns in (32a–b) (i.e. *vy* + SF$_{\mathbf{PL}}$ and *vy* + LF$_{\mathbf{SG}}$ referring to one person) fall out automatically from our hypothesis: the 'predicate LF' *umnaja* in (33b) is *singular* because *it agrees with the singular null head* **n** *of the predicate nP containing it*, not with the plural *vy* subject. The SF in (33c) is not contained in a predicate nominal

nP and thus, since it is the main predicator, it agrees directly with its (formally) plural subject *vy*, just as the copula *byli* 'were' does. Thus, given our analysis of the 'predicate LF' and SF in (29) and (30), any subject-predicate agreement pattern other than the 'complex' one we observe in (32) and (33) would be unexpected since, given (29) and (30), it is entirely regular.

4.2 Diagnostic II: The third-person pronoun test for nP constituency

Sentences like (35a) and (35b) below lend further support to our hypothesis that the 'predicate LF' agrees with the null head of the predicate nominal nP containing it. We see in (34) that the third person personal pronoun has a function in Russian that it does not have in English: it corresponds to the nonspecific/nonreferential use of the pronoun *one*. This use of the personal pronoun in Russian can serve as an nP-diagnostic because the Russian personal pronoun's antecedent must be a nP; it makes no difference whether the head of its antecedent is overt, as in (34), or null, as in (35a). Our hypothesis that (29) and (30) are the structures of (3b) and (3a) predicts the well-formedness of (35a) and the unnaturalness of (35b): the SF *žestok* 'cruel' is by hypothesis not an nP constituent and we thus do not expect im_{INST} ('*it/him*' = one') to be able to refer to it.

(34) Ja ne **trus** i nikogda **im** ne byl.
I NEG $\text{coward}_{\text{NOM.M}}$ and never $\text{him}_{\text{INST.M}}$ NEG was_{M}
'I am not a coward and never was one (lit. nonreferential $\text{it/him}_{\text{PI}}$).'

(35) a. Ty vsegda byl [takoj **žestokij**] ili stal **im**
you always was such $\text{cruel}_{\text{LF.NOM.M}}$ or became him/one
posle vojny?
after war
'Were you always such a cruel person or did you become one after the war?'

b. ?*Ty vsegda byl tak **žestok** ili stal **im** posle vojny?
you always was so $\text{cruel}_{\text{SF.NOM.M}}$ or became him/one after war
'*Were you always so cruel or did you become one after the war.'

While there is complete argeement among Russian speakers that (35a) is natural and that (35b) is not, some speakers do not flatly reject (35b) as ungrammatical, as our hypothesis predicts they should. My guess is that this may correlate with the on-going loss of the SF in colloquial Russian. It should also be noted that this construction has other unpredictable properties, e.g. Ora Matushansky (personal communication) reports that the *feminine* personal pronoun is not acceptable to many speakers: **Ty vsegda* $byla_{\text{F}}$ $takaja_{\text{LF.F}}$ $žestotkaja_{\text{LF.F}}$ *ili* $stala_{\text{F}}$ $ej_{\text{INST.F}}$ *posle vojny* 'Were you always such

a cruel woman or did you becone one after the war?'. But it is possible: see the following sentence from A. Marinina: *Ja*$_{\text{NOM.F}}$ *ne krasavica*$_{\text{NOM.F}}$*i nikogda ne smogu eju*$_{\text{PI.F}}$*byt'* 'I (am) not a-beautiful-woman and will never be-able to-be one (lit. it/her)'. We will have to leave (35b) to future research. Nevertheless, the fact that (35a) is fully grammatical can be accounted for only if (29) is correct and therefore supports our hypothesis the 'predicate LFs' are adjoined to the null head of a predicate nominal nP.

4.3 Diagnostic III: The distribution of *tak* and *takoj*

The distribution of *tak* 'so' and *takoj* 'such' in (35a–b) can serve as another nP-diagnostic: *takoj* is a LF pronominal adjective that modifies nouns, e.g.: *Nam*$_{\text{DAT.PL}}$ *nužen*$_{\text{SF.M.SG}}$[$_{\text{nP}}$*takoj*$_{\text{LF.NOM.M.SG}}$ *(*tak*$_{\text{ADV}}$*) rabotnik*$_{\text{NOM.M.SG}}$] 'We need [such a-worker]'). This means that in (35a) *takoj* is licensed by and agrees with the null head of the predicate-nominal nP, not with the overt LF adjective *žestokij*. *Tak* 'so' is an uninflected adverb (*tak-o* in Old Russian) and the occurrence of *tak (*takoj) žestok*$_{\text{SF}}$ in (35b) follows from our hypothesis that the SF is the main predicate and can thus be modified by adverbs. Compare: *Ona takaja*$_{\text{LF.NOM.F}}$ (**tak*$_{\text{ADV}}$) *umnaja*$_{\text{LF}}$ (**umna*$_{\text{SF}}$) 'She is such a smart woman/girl, etc.' and *Ona tak*$_{\text{ADV}}$ (**takaja*$_{\text{LF.NOM.F}}$) *umna*$_{\text{SF}}$ (**umnaja*$_{\text{LF}}$) 'She is so smart'. In other words, *tak* is not licensed in 'predicate LFs' for the same reason it is not licensed in nPs with overt heads: cf. *[$_{\text{nP}}$*tak*$_{\text{ADV}}$*umnaja*$_{\text{LF.NOM.F}}$ *devuška*$_{\text{NOM.F}}$] '*so a smart girl' and [$_{\text{nP}}$*takaja*$_{\text{LF.NOM.F}}$*umnaja*$_{\text{LF.NOM.F}}$*devuška*$_{\text{NOM.F}}$] 'such a smart girl'.

4.4 Diagnostic IV: *kak* + nP

Here we see another type of evidence supporting our hypothesis that the 'predicate LF' in (3b) is just one of many constructions in which the LF modifies the null head of an nP. Consider the sentence in (36), which demonstrates that the function word *kak* 'as' heads a functional projection kP (the abbreviation of *kak*P) that selects an nP complement: [$_{\text{kP}}$ *kak* nP].

(36)	Nam$_{\text{DAT}}$	pridetsja	vzjat'	**ee**	s	soboj	[$_{\text{kP}\langle i\rangle}$ kak	[$_{\text{nP}\langle i\rangle}$ **plennicu**].
	us	needs	to-take	her$_{\text{ACC}}$	with	self$_{\text{INST}}$	as	hostage$_{\text{ACC}}$

'We need to take her with us (lit. ourselves) as a hostage.'

The fact that the nP complement of *kak* 'as' agrees in accusative case with kP's matrix-clause antecedent *ee* 'her' tells us that the *kak*-phrase must be an s-predicate kP$_{\text{i}}$ which is vertically bound in the TBC headed by its matrix nP antecedent. Since *kak* is a functor and thus does not assign theta roles, kP$_{\text{i}}$ must get its unlinked external theta role **i** from

its nP_i complement (cf. 'theta-role inheritance' of auxiliary verbs in Williams 1994, Babby 2009).

This analysis predicts that LFs but not SFs can function as the complement of *kak* since LFs but not SFs can be contained in nPs. In (37) and (38), the head of the nP_i complement of *kak* is suppressed (null) under identity to a preceding (c-commanding) matrix nP_j or nP_i; cf. the subject- and object-control of the adjunct afP_i in (7) and (9).

(37) On obnaružil neskol'ko otpečatkov, **kotorye** on opredelil t_K
he discovered several fingerprints $which_{ACC.PL}$ he_{NOM} identified
$[_{kP\langle i\rangle}$ $[_{k'}$ kak$[_{nP\langle i\rangle}$**n**$_{ACC}$ $[_{afP\langle i\rangle}$ **prinadležaščie**$_{LF.ACC.PL}$ generalu]]]].
as belonging $general_{DAT}$
'He discovered several fingerprints, which he identified as belonging to the general.' (NB: active participles have LFs only and are thus inherent afP_is)

(38) a. Takaja $gibel'_i$ ne možet rassmatrivat'sja $[_{kP\langle i\rangle}$ kak $[_{nP\langle i\rangle}$**n** NOM
such destruction $_{NOM.F}$ NEG can be-considered as
$[_{afP\langle i\rangle}$ $slučajnaja_{LF.NOM.F}$ (*$slučajna_{SF}$)]]].
accidental
'This kind of destruction cannot be viewed [as accidental].'

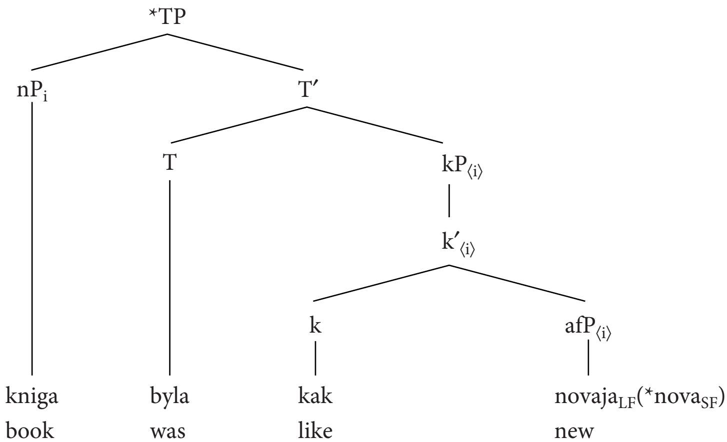
b. Takuju gibel' ne mogut rassmatrivat' kak $slučajnuju_{LF.ACC.F}$)
such destruction $_{ACC.F}$ NEG can_{PL} to-consider as accidental
'We/people cannot consider this kind of destruction to be accidental.'

But there is a potential problem: it is difficult to tell whether the LF in sentences like (37) and (38) is contained in a null headed nP ($[_{nPi}$**n** $afP_{\langle i\rangle}$]), which is what they are meant to demonstrate, or whether it merges directly with *kak*, which is possible since kP_i is an adjunct in these sentences and, therefore $[_{kPi}$ $[_{k'\langle i\rangle}$ kak $afP_{\langle i\rangle}$] does not violate any well-formedness principles. However, sentences like (39a), in which the *kak*-phrase functions as the main predicator, provide unambiguous evidence that the $[_{kP\langle i\rangle}$ kak $[_{nP\langle i\rangle}$**n**$_{NOM}$ $aP_{\langle i\rangle}$]] structure is correct; recall that **n** represents a null-headed $[N\text{-}n]_n$. (41), not (40) is the structure of (39a).

(39) a. Kniga byla kak $novaja_{LF.NOM.F}$ (*$nova_{SF.NOM.F}$).
$book_{NOM.F}$ was_F like new
'The-book was like new.'

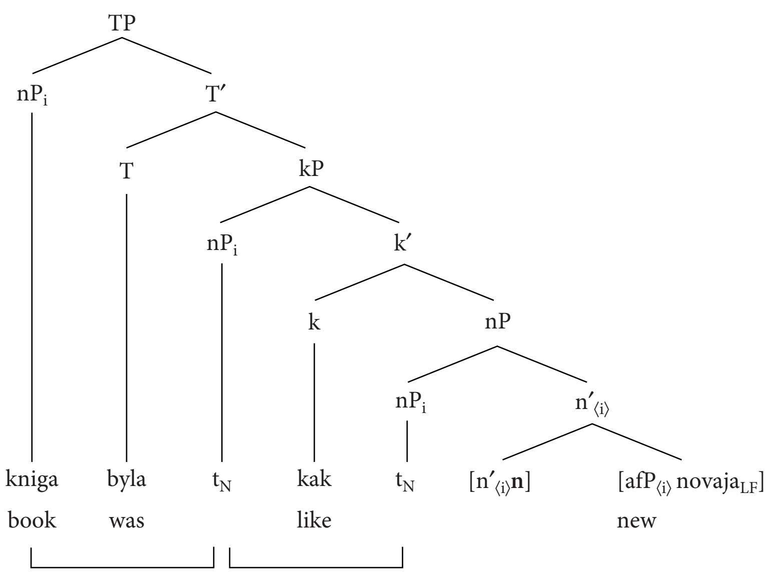
b. Ruka $byla_F$ kak $stekljannaja_{LF.NOM.F}$ (tol'ko čto ne zvenela).
$hand_{NOM.F}$ was_F like glass
'It was as though (her) hand was like (made of) glass (it all but rang).'
(L. Ulickaja)

(40)



The LF *novaja* 'new' in (39a) cannot have the structure in (40) for the same reason that, in *Kniga byla novaja*$_{LF}$ 'The-book was new', *novaja* cannot merge directly with the copula *byla* and have the structure in (17): in both cases the LF, which is an s-predicate, cannot license the subject nP (*kniga*). Both (40) and (17) are ill-formed because they involve a Projection-Principle violation, i.e. there is a mismatch between the predicator's argument structure and its syntactic projection. (39a) thus has the structure in (41), where *novaja* is contained in the null-headed predicate-nominal nP small-clause complement of *kak*, which licenses the nominative subject *kniga*, just as the predicate nominal licenses the nominative subject nP in (29) above.

(41)



We conclude on the basis of this analysis that *kak* selects $nP_{(i)}$, i.e. a nP_i s-predicate complement (as in (36) – (38)) or nP small-clause complement, as in (39a)/(41) (cf. afP ~ afP_i, infP ~ $infP_i$, nP ~ nP_i, etc.). More specifically, in the case of (39a)/(41), since *kak*, being a functor, does not assign theta roles, the 'subject' *kniga* of its small clause nP complement merges in spec-nP and raises through spec-kP to spec-TP (cf. the derivation of the subject + copula + aP_{SF} construction in (30)). This derivation automatically explains why SFs are excluded in *kak*-phrases: *kak* selects an nP complement and, as demonstrated above, SFs cannot be nP-constituents.[4]

4.5 Diagnostic V: The 'predicate genitive'

The derivation of the 'predicate genitive' construction in sentences like (42) provides another type of evidence supporting the afP_i-in-nP analysis of the 'predicate LF'. The 'predicate genitive' can be accounted for in our framework in exactly the same way as the 'predicate LF', i.e. in terms of a small-clause predicate-nominal nP with a suppressed head **n**, which is modifed by an overt *adnominal genitive* nP_i rather than a LF (see (44) – (48) for additional examples). In other words, (42) has the same structure as (43) with one difference: the head of the predicate nominal nP in (43) is overt. We shall see below that, as we might expect given the relation between (42) and (43), the canonically null head of the 'predicate LF' can also be overt, which is our strongest piece of evidence that (29) is the correct structure of (3b); see below.

(42) On visokogo rosta.
he$_{NOM}$ tall$_{GEN}$ stature$_{GEN}$
'He is of tall stature.' = 'He is tall.'

4. An anonymous reviewer points out that the TBC head-tail case agreement analysis of kP proposed above may be falsified by sentences like the following: [$_{PP}$*S nej*] *obraščajutsja*$_{PL}$ [*kak* [$_{PP}$ *s plennicej*]] '(lit.) (They) are-acting with her as with a hostage.' This sentence suggests that we might be dealing with ellipsis rather than with case agreement, in which case the structure of this sentence would be something like *They are-acting with her (the way they would act) with a hostage*. Note, however, that sentences like (36) – (39) cannot be paraphrased in this manner and, therefore, cannot be attributed to ellipsis. However, in order to evaluate this evidence, it would be necessary to review the extensive evidence that there is more than one *kak* lexical item in Russian, which is beyond the the scope of this paper. I should add that, even if the behavior of the complements of kP should turn out not to support our analysis of the 'predicate LF', it important be bear in mind when evaluating the paper's main hypothesis, that it does not argue *against* it; kP would simply not be a piece of supporting evidence.

(43) On [$_{nP:NOM}$t$_{N}$ [n′ [n′ [n čelovek] [$_{nP:GEN}$ vysokogo rosta]]
he$_{NOM}$ person$_{NOM}$ tall$_{GEN}$ stature$_{GEN}$
‘He is a-person/man of tall stature.’ = ‘He is a tall person.’).

The only significant difference between the [subject + copula + ‘predicate genitive’] and the [subject + copula + ‘predicate LF’] constructions is that, whereas the LF *agrees* with the null head of the predicate nominal it modifies, the ‘predicate genitive’ is the null head’s non-agreeing adnominal genitive modifier. Thus both the ‘predicate genitive’ and the ‘predicate LF’ adjuncts Function as modifiers of the supressed head of nP in a [subject + copula + predicate-nominal nP] construction, where the subject of the sentence, which is merged in spec-nP, is assigned a theta role by the predicate-nominal’s head before raising to spec-TP. Examples like (45) provide particulary strong support for our null-headed predicate-nominal analysis of the ‘predicate genitive’ and the ‘predicate LF’ because [*bomba*$_{NOM}$[$_{GEN}$ *zamedlennogo dejstvija*]] ‘delayed action bomb’ (lit. ‘bomb of delayed action’) is a fixed expression.

(44) a. Odežda dlja putešestvija dolžna byt’
clothing for travel should be
[$_{nP:NOM}$**n** [$_{nP:GEN}$ sportivnogo pokroja]].
sporty$_{GEN}$ cut$_{GEN}$
‘Clothing for travel should be of a sporty cut/style.’

b. [$_{nP}$ odežda sportivnogo pokroja].
‘clothing$_{NOM}$ of a sporty cut/style’

c. Pokroj$_{NOM}$ ee odeždy$_{GEN}$ vsegda byl [$_{nP}$ [**n** (pokroj)]
cut her clothing always was cut
[$_{afP\langle i\rangle}$sportivnyj$_{LF.NOM}$]].
sporty
‘The-cut/style of her clothing was always a sporty cut/style/?one.’

(45) a. Bomba byla [$_{nP}$ **n** [$_{nP}$ zamedlennogo$_{LF.GEN}$ dejstvija]].
bomb$_{NOM}$ was delayed action$_{GEN}$
‘(lit.) The bomb was (a bomb) of delayed action.’

b. [$_{nP}$ bomba [$_{nP}$ zamedlennogo dejstvija]].
‘a delayed action bomb’

(46) a. Ženščina byla [$_{nP}$ **n** dovol’no groznogo$_{LF.GEN}$ vida].
woman$_{NOM}$ was quite$_{ADV}$ ferocious$_{LF.GEN}$ appearance$_{GEN}$
‘(lit.) The woman was of a quite ferocious appearance.’

b. Dver’ otkryla [$_{nP}$ ženščina$_{NOM}$ dovol’no groznogo$_{LF.GEN}$ vida].
door$_{ACC}$ opened woman quite ferocious appearance$_{GEN}$
‘[A woman of quite ferocious appearance] opened the door.’

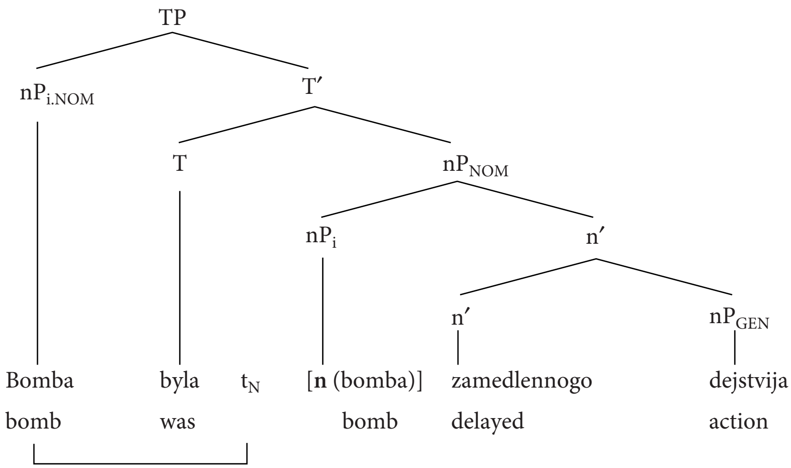
(47) a. Nikita – [$_{nP:NOM}$ morjak [$_{nP:GEN}$ staroj$_{LF.GEN}$ zakvaski]].
Nikita sailor$_{NOM}$ old barm$_{GEN}$
'Nikita is a sailor of the old school.'

b. Èti morjaki – [$_{nP.NOM}$ **n** [$_{NP.GEN}$ staroj$_{LF.GEN}$ zakvaski]].
these sailor$_{NOM.PL}$ old barm$_{GEN}$
'These sailors are (sailors) of the old school.'

(48) Sumka dolžna byt' [$_{nP}$**n** [$_{nP:GEN}$ nebol'šogo$_{LF.GEN}$ razmera$_{GEN}$].
bag$_{NOM}$ must to-be not-large size$_{GEN}$
'(lit.) The bag should be of small size.'

The structure of the 'predicate genitive' sentence in (49) and the structures in (29), (30), and (41) suggest the following generalization: the subject of a copula-sentence always merges first in spec-position of sentence's small clause predicate [$_{xP}$ nP$_{i.NOM}$x'$_{\langle i\rangle}$] and then raises to spec-TP to check its nominative case feature: [$_{TP}$ nP$_{i.NOM}$ [$_{T'}$ [$_{T}$ copula] [$_{xP}$ t$_{NOM}$x'$_{\langle i\rangle}$] (see Moro 2000).

(49)



In the following examples, the overt head of the predicate nominal nP has been *extracted* and preposed (topicalized), which is parallel to 'predicate LF' sentences like: *Paren'*$_{NOM.M}$ || *on*$_{NOM.M}$ *byl*$_{M}$[$_{nP}$ t$_{N}$ [$_{aP\langle i\rangle}$ *sil'nyj*$_{LF.NOM.M}$] 'He was a-strong guy' (lit. 'A guy || he was strong'). ("||" separates the 'topic' from the 'comment').

(50) a. Material || želatel'no vybrat' [$_{nP:ACC}$ t$_{N}$
material$_{ACC}$ desirable to-select
[$_{nP:GEN}$ skromnoj$_{LF.GEN}$ rascvetki]].
modest color-scheme$_{GEN}$
'It is desirable to select material of a modest color-scheme.'

b. Želatel'no vybrat' [$_{nP}$ material [$_{nP}$ skromnoj$_{LF.GEN}$ rascvetki]].
desirable to-select material$_{ACC}$ modest color-scheme$_{GEN}$
'It is desirable to select material of a modest color-scheme.'

c. Tufli || ona nosila [$_{nP:ACC}$ t$_{N}$ [$_{nP}$ očen' malen'kogo$_{LF.GEN}$ razmera]].
shoes$_{ACC}$ she$_{NOM}$ wore very small size$_{GEN}$
'She wore shoes [of a very small size]' ((lit.) 'Shoes || she wore (of) a small size.')

d. Ona nosila [$_{nP:ACC}$ tufli [$_{nP:GEN}$ očen' malen'kogo razmera]].
she wore shoes$_{ACC}$ very small size$_{GEN}$
'She wore shoes of a very small size.'

4.6 Diagnostic VI: Differences in meaning between LF and SF

The syntactic structures corresponding to the SF and 'predicate LF' I am proposing, which are summarized in (51), appear to be on the right track because they account for the difference in meaning that has been attributed to LF ~ SF sentence pairs like (52a–b), which is from Isačenko (1963: 75). His most cogent characterization of the semantic difference between the 'predicate LF' and the SF is his paraphrase of (52a–b) in (53a–b); cf. also his German translation of (54a) in (54b). See also Švedova (1948, 1952), Tolstoj (1966), Stepanov (1981: 152), Babby (1975, 1998b), and Siegel (1976).

(51) a. SF: [$_{TP}$ Vino$_{i}$ [$_{T'}$ bylo [$_{afP}$ t$_{N}$ [$_{af'\langle i\rangle}$ vkusno$_{SF}$]]]
wine was good
'Wine is good / the wine is good.'

b. SF: *[$_{TP}$ Vino$_{i}$ [$_{T'}$ bylo [$_{nP}$ **n** [$_{afP}$ [$_{af'\langle i\rangle}$ t$_{N}$ vkusno$_{SF}$]]]]

c. LF: [$_{TP}$ Vino$_{i}$ [$_{T'}$ bylo [$_{nP}$ **n** [$_{afP\langle i\rangle}$ vkusnoe$_{LF}$]]]

d. LF: *[$_{TP}$ Vino$_{i}$ [$_{T'}$ bylo [$_{afP\langle i\rangle}$ vkusnoe$_{LF}$]]]

(52) a. Kitajskij jazyk očen' trudnyj.
Chinese language$_{NOM.M}$ very difficult$_{LF.NOM.M}$
'The-Chinese language is very difficult (=very difficult as languages go).'

b. Kitajskij jazyk očen' truden.
Chinese language$_{NOM.M}$ very difficult$_{SF.NOM.M}$
'The-Chinese language is very difficult.'

(53) a. Kitajskij jazyk otnositsja k klassu trudnyx jazykov. (see (52a))
Chinese language belongs in class difficult$_{GEN}$ languages$_{GEN}$
'Chinese belongs to the class of difficult languages.'

b. Trudnost' – svojstvo kitajskogo jazyka. (see (52b))
difficulty property Chinese$_{GEN}$ language$_{GEN}$
'Difficulty is a property of the Chinese language.'

(54) a. Ètot vopros političeskij.
this $question_{NOM.M}$ $political_{LF.NOM.M}$
'This question is (a) political (one).'

b. Diese Frage ist eine politische. (Ge)
'This question is (a) political (one).'

Since, by hypothesis, the 'predicate LFs' *vkusnoe* in (51c) and *trudnyj* in (52a) modify the head of a predicate nominal nP and are thus *attributive* adjectives, we expect their interpretation to be akin to that of a *restrictive relative clause*, i.e. the property denoted by the 'predicate LF' adjective is construed as being attributed to the subject of the sentence with respect to the class of objects it belongs to (see Babby 1975 and 1998b, Stepanov 1981: 152, Isačenko 1963, Švedova 1952: 92; see the discussion of the *restrictive* vs. *appositive* meaning of attributive adjectives in Jespersen 1924). The meaning of (51c) is thus '*This/the wine is* [$_{nP}$ *a-good-wine/one*]', i.e. good with respect to other wines. SFs, which do not have an intermediate nP projection, do not have this restrictive meaning and thus are unmarked for class-membership (see (52b) = (53b)). In other words, (51a) conveys the same real-world information as (51c) without reference to the class of objects to which the subject belongs.

Our analysis of the 'predicate LF' as [$_{nP}$ t_N[**n** $afP_{\langle i\rangle}$]] entails that the difference in meaning characterized above is not an inherent property of the LF and SF suffixes, which compose with the same lexical stem; it derives from the larger morphosyntactic configurations which they lexicalize (see (29) and (30)). That this analysis of the 'predicate LF's' structure and meaning is correct can be seen from the fact that it makes the following prediction: nouns that are unique, i.e. belong to a class of one, or denote actions/events, cannot be the subject of a sentence with a 'predicate LF' in standard Russian. Thus only the SF is natural in (55) since there is only one (*outer)space*, i.e. in ordinary usage, there is no class of *spaces* such that one can be singled out by the restrictive semantics associated with the 'predicate LF'.

(55) Prostranstvo $beskonečno_{SF.NOM.N}$ (*$beskonečnoe_{LF}$).
$space_{NOM.N}$ infinite
'Space is infinite (*an infinite one).'

(56) Prestupnik ponjal, čto soprotivlenie $bespolezno_{SF}$ (*$bespoleznoe_{LF}$).
criminal understood that resistance futile
'The criminal understood that resistance was futile (*a futile one).'

The [$_{nP}$ **n** $aP_{\langle i\rangle}$] structure of the 'predicate LF' also correctly predicts that when pronouns like *èto* 'this', *vse* 'everything', and *čto* 'what', etc., which cannot be modified by a relative clause, are subjects, the 'predicate LF' is excluded (see Švedova 1952: 97); (60) demonstrates that the same is true of infinitive clause subjects.

(57) Èto bylo vozmožno (*vozmožnoe)
'This was possible$_{\text{SF (*LF)}}$.'

(58) Teper' ponjatno$_{\text{SF}}$ (*ponjatnoe$_{\text{LF}}$), čto delat' dal'še.
now clear what to-do next
'It is now clear what to do next.'

(59) Važno$_{\text{SF}}$ (*važnoe$_{\text{LF}}$) to, čto Nikita ponjal Annu.
important it$_{\text{NOM}}$ that Nikita$_{\text{NOM}}$ understood Anna$_{\text{ACC}}$
'The fact that Nikita understood Anna is important.'

(60) [Perenosit' doklad na bolee pozdnij srok]
postpone$_{\text{INF}}$ report$_{\text{ACC}}$ to more late date
bylo neželatel'no$_{\text{SF}}$ (*neželatel'noe$_{\text{LF}}$).
was undesirable
'It was undesirable [to postpone the report to a later date].'

It has to be pointed out that the system described above is disappearing – the SF is being replaced by the LF – and, therefore, for many younger Russian speakers and speakers of nonstandard Russian, the 'predicate LF' no longer has the restrictive semantics attributed to it by Isačenko (see (52) and (53)) and others.

4.7 Diagnostic VII: 'Predicate LFs' with overt heads

The following piece of evidence for the afP$_{\text{i}}$-in-nP structure in (29) is crucial: although the head **n** in the [$_{\text{nP}}$ t$_{\text{N}}$ **n** afP$_{\langle\text{i}\rangle}$] predicate nominal is canonically null, it can be made overt for stylistic reasons (cf. *This wine is a really good wine!*) when it is identical to the subject or is an "abstract" noun (classifier) like *čelovek* 'person' (which cannot normally be used as a predicate-nominal unless it is modified by a adjective): the 'predicate LF' is the semantic focus of the nP (see Kustova et al. 2005: 9). Siegel (1976) identifies **n** in (51c) [$_{\text{TP}}$*Vino*$_{\text{i}}$ [$_{\text{T'}}$*bylo* [$_{\text{nP}}$ t$_{\text{N}}$ **n** [$_{\text{afP}\langle\text{i}\rangle}$*vkusnoe*$_{\text{LF}}$]]] 'The wine was good' as a free variable ranging over common nouns. Compare the 'predicate LF' in *Anna*$_{\text{NOM}}$[$_{\text{nP}}$ *ženščina*$_{\text{NOM}}$ *xitraja*$_{\text{LF.NOM.F}}$] 'Anna is a clever woman' and the 'predicate genitive' in *Anna*$_{\text{NOM}}$ [$_{\text{nP}}$ *ženščina*$_{\text{NOM.F}}$ *krepkogo*$_{\text{LF.GEN.N}}$ *zdorov'ja*$_{\text{GEN.N}}$] 'Anna is a woman of robust health.'

Overt **n** in [$_{\text{nP}}$ t$_{\text{N}}$ n afP$_{\langle\text{i}\rangle}$] predicate nominal nP small clauses typically has the function of a *classifier* and, in keeping with its reduced semantic role, it is pronounced with accelerated tempo, reduced stress, and normally precedes its LF modifier, which has the effect of defocusing n and focusing the postposed LF modifier (attributive adjectives normally *precede* the noun they modify in Russian). Traditional grammars of Russian classify the overt n in sentences like (61) as a "copula word" whose function is to link the subject to the "predicate LF" (cf. Tolstoj 1966: 181), e.g. it is claimed that (61b) has the structure represented by [*Ona*]$_{\text{subject}}$ + [*ženščina*]$_{\text{copula}}$ + [*umnaja*$_{\text{LF}}$]$_{\text{predicate adjective}}$ (She + woman + smart).

(61) a. [Vino, kotoroe my kupili,] bylo [(vino) vkusnoe$_{LF.NOM}$].
wine$_{NOM}$ which$_{ACC}$ we$_{NOM}$ bought was wine$_{NOM}$ good$_{LF.NOM}$
'[The wine that we bought] was [(a) good (wine)].'

b. Ona [(ženščina) umnaja$_{LF.NOM}$].
she$_{NOM}$ woman$_{NOM}$ smart$_{LF.NOM}$
'She is (a) smart (woman).'

The intuition that the preposed overt head noun of the predicate nominal nP in sentences like (61b) has a special semantically-reduced "copula" function follows naturally from the fact that here it is the postposed LF *umnaja* 'smart' rather than the head noun *ženščina* 'woman' that carries the sentence's 'new' information. However, as far as syntactic structure is concerned, the generic noun and its postposed modifier in (61) are constituents of the same predicate nominal nP, whose head is not a "copula" in any formal sense.

In (62) we see examples of 'predicate LFs' where the null head **n** of $[_{nP}\ t_N\ [_{n'}$ **n** afP$_{\langle i \rangle}$]] is easily recoverable from the immediate context; e.g. it is obvious from the sentence in (62a) that the structure of the 'predicate LF' *glavnaja* 'main (one)' is the following predicate nominal: $[_{nP}\ t_N\ [_{n'}\ [_{n'}$ [**n** (*sestra*)]] $[_{afP\langle i \rangle}$ *glavnaja*]]], where t_N is the trace of the subject *Maša*, which raises from spec-nP to spec-TP, as in all the derivations we have seen above.

(62) a. Mama priznavala, čto Maša iz dvux
mama admitted that Maša$_{NOM}$ from two$_{GEN}$
sester **glavnaja**.
sisters$_{GEN.F}$ main$_{LF.NOM.F}$
'Mama admitted that of the two sisters Masha is the main sister/one.'

b. Bol'šoj nož - edinstvennyj **režuščij** vo vsem dome.
big knife$_{NOM}$ only$_{LF.NOM}$ cutting$_{LF.NOM}$ in whole house
'The-big knife is the only knife/one that cuts in the whole house.'

c. Èto prokljatoe delo [$_{nP}$ takoe (*tak) **zaputannoe**].
this damned case$_{NOM.N}$ such$_{LF.NOM.N}$ (so$_{ADV}$) intricate$_{LF.NOM.N}$
'This damned case is such an intricate case/one.'

d. Suščestvujut dve versii ètogo epizoda, i mne plevat',
exist two versions$_{GEN.F}$ this eposode$_{GEN}$ and me$_{DAT}$ to-spit
kakaja iz nix **pravil'naja**.
which$_{LF.NOM.F}$ from them$_{GEN}$ correct$_{LF.NOM.F}$
'There exist two versions of this episode, and I couldn't care less, which of them is the correct one/version.'

Note that *režuščij* in (62b) is a *-šč*-participle, which is an inherent afP$_i$: it has an external theta role, has no subject nP, and it occurs in the LF only. Since, as we saw above,

a LF (afP$_i$) cannot be a primary predicate because it does not license a subject nP, *režuščij* 'cutting' must be contained in a null-headed predicate nominal nP and its unlinked external theta-role is therefore bound nP-internally (see (29)). This analysis of (62b) receives further confirmation from the fact that the LF adjective *edinstvennyj* 'only' must also be modifying the null head of the putative nP since LF adjectives do not modify participles (cf. *bystro*$_{ADV}$/**bystryj*$_{LF}$ *čitajuščij*$_{LF}$ '(who is) reading quickly/*quick$_{LF}$').

Up to now we have considered the LF in nP-internal position (i.e. $[_{nP}\ [_{n'}\ n\ afP_{\langle i\rangle}]]$) and nP-external position, as in (7)–(9); there is a third logical possibility, namely, afP$_i$ *adjoined* to nP$_i$: $[_{nPi}\ nP_i\ afP_{\langle i\rangle}]$ and $[_{nPi}\ afP_{\langle i\rangle} nP_i]$. The existence of this construction provides additional empirical evidence supporting the LF and SF structures posited above: they predictably exclude the SF.

We look first at LF adjectives adjoined to the nP complement of a preposition, which has the following structure: $[_{PP}\ [_{P'}\ P\ [_{nPi}\ nP_i\ afP_{\langle i\rangle}]]]$. The preposition *na* 'at' in (63) assigns accusative case to its nP complement, the accusative reflexive pronoun *sebja*. The depictive LF *goluju* 'naked' obligatorily agrees in case, gender, and number with *sebja*, which is the head of its TBC; *sebja* itself is antecedent-bound by the subject *ja* 'I', which is thus construed as its antecedent. See (64) for additional examples.

(63) **Ja** ne ljublju smotret' **na sebja goluju**.
I NEG like to-look at self$_{ACC.F}$ naked$_{LF.ACC.F}$
'I don't like to look at myself (when I am) naked (in the mirror).'

(64) a. Naručniki snimut **s nego mertvogo**.
handcuffs$_{ACC}$ remove$_{PL}$ from him$_{GEN.M}$ dead$_{LF.GEN.M}$
'(Unspecified agent) will remove the handcuffs from him (only when he is) dead.'

b. Ty dolžen streljat' **v nego pervogo**.
you must shoot at him$_{ACC.M}$ first$_{ACC.M}$
'You must shoot at him first = he has to be the first one you shoot at.'

c. Ty dolžen streljat' **v nego pervyj**.
you must shoot at him$_{ACC.M}$ first$_{NOM.M}$
'You must shoot at him first = you have to be the first one to shoot at him.'

d. Žesty xarakterny **dlja nego rasseržennogo**.
gestures characteristic$_{SF.NOM.PL}$ for him$_{GEN.M}$ angry$_{LF.GEN.M}$
'(These) gestures are characteristic of him (when he is) argry.'

e. Esli **u nee bol'noj** takie povadki, ne pozaviduju
if at her$_{GEN}$ sick$_{LF.GEN.F}$ such manners$_{NOM}$ NEG envy
tomu, komu ona vstretitsja zdorovoj.
the-one$_{DAT}$ whom$_{DAT}$ she$_{NOM}$ meets healthy$_{LF.GEN.F}$
'If she acts this way (when she is) sick, I don't envy whomever she encounters (when she is) healthy.'

Given the obligatory accusative case agreement between *sebja* 'self' and *goluju* 'naked' in (63), the afP_i-to-nP_i adjunction analysis represented in (65a) is the only option: $[_{afP\langle i\rangle}$ *goluju*] is vertically bound by $[_{nPi}$ *sebja*] in $[_{nPi}\ [_{nPi}$ *sebja*$_{ACC}$] $[_{afP\langle i\rangle}$ *goluju*$_{ACC}$]] '(at) herself naked'. The small clause, PRO-subject analysis in (65b) is not an option because LFs do not license subjects nPs of any kind, including null PRO subjects.

(65) a. $[_{PP}$ na $[_{nPi}\ [_{nPi}$ sebja$_{ACC}$] $[_{aP\langle i\rangle}$ goluju$_{LF.ACC}$]]]
'at herself (when she is) naked'

b. *$[_{PP}$ na $[_{nP}\ [_{nPi}$ sebja] $[_{aP}PRO_i\ [a'_{\langle i\rangle}$ goluju]]]]
c. *$[_{PP}$ na $[_{nPi}\ [_{n'}[_{n'}$ sebja] $[_{afP\langle i\rangle}$ goluju]]]

(65c), where *sebja* and [*goluju*]$_{aP\langle i\rangle}$ are inside the same nP maximal projection, cannot be the correct structure for (63) because it gives the wrong meaning: when afP_i is bound inside nP, i.e. adjoined to n'_i, it has an attributive reading. It is only when aP_i adjoins to the root nP_i node, as in (65a), that it involves a predicational reading, i.e. is construed, depending on context, as a *when* or *because* clause rather than a relative clause. In more general terms, (66a) represents 'attribution' and (66b) represents secondary predication. Since both involve the adjunction and vertical binding of afP_i, we must conclude that predication is a theta-relation between maximal phrasal projections, as in (66b). In contrast, $afP_{\langle i\rangle}$ in (66a) is vertically bound by x'_i, which is not a maximal projection (see McCloskey 1997: 221).

5. Attributive and predicational function of LF-adjectives

The remainder of the article is devoted to an explication of the proposal in (66) based on discussion of the examples in (67)–(72)

(66) a. afP_i in attributive function: $[_{xP}\ [_{x'}\ x'_i\ \ afP_{\langle i\rangle}]]$
b. afP_i in predicational function: $[_{xP}\ xP_i\ \ afP_{\langle i\rangle}]$

The efficacy of the complementary definitions of 'attribution' and 'secondary predication' in (66) is further illustrated by the minimal sentence-pair in (67a–b), where the preposed LF *golodnyj* 'hungry' appears to be in the same position in both sentences. The only formal difference between the (67a) and (67b) is the "comma-intonation" (pause) in (67a) and its absence in (67b). This difference correlates with a clear-cut, systematic difference in meaning: *golodnyj* 'hungry' in (67b) is construed as having essentially the same restrictive meaning as a relative clause (cf. (68b)), while *golodnyj* in (67a) corresponds to an adjunct *because*-clause. See (67e), where both functions of afP_i cooccur.

(67) a. Golodnyj, mal'čik otpravilsja domoj.
hungry$_{NOM.LF.M}$ boy$_{NOM.M}$ went home
'Because he was hungry, the boy went home.'

b. Golodnyj mal'čik otpravilsja domoj.
hungry$_{LF.NOM.M}$ boy$_{NOM.M}$ went home
'The-boy who was hungry went home.'

c. *Goloden$_{SF}$, mal'čik otpravilsja domoj.

d. *Goloden$_{SF}$ mal'čik otpravilsja domoj.

e. Ispugannyj, golodnyj mal'čik otpravilsja domoj.
frightened$_{LF.NOM.M}$ hungry$_{LF.NOM.M}$ boy$_{NOM.M}$ went home
'Because he was frightened, the boy who was hungary went home.'

(68) a. Golodnyj, on otpravilsja domoj.
hungry$_{LF.NOM}$ he$_{NOM}$ went home
'He went home because he was hungry.'

b. *Golodnyj on otpravilsja domoj.
hungry$_{LF.NOM}$ he$_{NOM}$ went home
'*Hungry he went home.'

(69) a. Ustalye, putniki / oni ostanovilis' na nočleg.
tired$_{LF.NOM}$ travelers$_{NOM}$ they stopped for night
'Tired, the travelers/they stopped for the night.'

b Ustalye putniki / *oni ostanovilis' na nočleg.
tired$_{LF.NOM}$ travelers$_{NOM}$ they stopped for night
'The tired travelers/*they stopped for the night.'

Both the formal and semantic differences between sentences like (67a–b) can be accounted for in terms of the difference in their morphosyntactic structures posited above, which are schematically represented in (70a–b) respectively (# denotes the pause marking afP$_i$-to-nP$_i$ adjunction.

(70) a. [$_{nPi.NOM}$ [$_{afP\langle i\rangle}$ golodnyj] # [$_{nPi}$ mal'čik]] otpravilsja domoj.
'The-boy went home because/when he was hungry.'

b. [$_{nPi.NOM}$ [$_{n'}$ [$_{afP\langle i\rangle}$ golodnyj] [$_{n'}$ mal'čik]]] otpravilsja domoj.
'The-boy who was hungry went home.'

The relation between [$_{afPi}$ *golodnyj*] and [$_{nPi}$ *mal'čik*] in (70a) is secondary predication, which is a theta relation between afP$_i$ and nP$_i$: the latter binds the former. The upper nP$_i$ is the subject of the sentence and is assigned the external theta-role **i** of *otpravilsja*. In (70b), [$_{afPi}$ *golodnyj*] is *inside* the the subject nP$_i$ headed by *mal'čik* and its external theta-role **i** is thus bound inside nPi, which is construed as *attribution* (see (66a)). This analysis is confirmed in (69): while adjectives cannot normally modify personal pronouns (see **oni* 'he' (69b)), there is no such restriction on the *predication* relation: (cf. (69a)). In other words, my hypothesis is this: (70a) and (70b) both involve adjunction and vertical binding; they differ in terms of the vertical binder in each, which is the maximal phrasal projection nP$_i$ in (70a), i.e. [$_{nPi}$ afP$_{\langle i\rangle}$ # nP$_i$], and the intermediate

node n'_i in (70b), i.e. $[_{nP}\ [_{n'i}\ afP_{\langle i\rangle}\ n'_i]]$. The difference in meaning between them and the presence of # in (70a) correlate with the way $afP_{\langle i\rangle}$ is vertically bound.

Our analysis of the SF correctly predicts that an ill-formed sentence results if we replace the LF *golodnyj* with the SF *goloden*, as in (67c–d): SFs project $[_{afP}\ nP_{i.NOM}\ a'_{\langle i\rangle}]$ small clauses, which have an obligatory nominative subject that must raise to spec-TP of a finite clause to check its nominative case feature: this is impossible in (67c–d): spec-TP is occupied by the subject of *otpravilsja domoj* 'went home'.

The $[_{nPi}\ afP_{\langle i\rangle}\ nP_i]$ adjunction structure proposed above to account for the form and meaning of (70a) makes the following correct prediction: since the $[_{nPi}\ afP_{\langle i\rangle}\ nP_i]$ predication relation proposed in (66b) is encapsulated inside nP, there is no reason for it to be limited to subject nPs and, therefore, to the nominative case: but this is precisely what we saw in (63) and (64), where $[_{nPi}\ nP_i\ afP_{\langle i\rangle}]$ is the complement of a preposition. More specifically, our analysis predicts that nP in any syntactic position should be able to contain the $[_{nPi}\ nP_i\ afP_{\langle i\rangle}]$ predication structure and, therefore, that the case of the $afP_{\langle i\rangle}$ should be determined by the case assigned to the dominating nP by virtue of its function in the sentence, i.e. $[_{nP.\alpha}\ afP_{\langle i\rangle\alpha}\ nP_{i.\alpha}]$($\alpha$ = any case). Sentences with preposed $[_{nP.\alpha}\ afP_{\langle i\rangle\alpha}\ nP_{i.\alpha}]$ are in fact very common in Russian. Thus in (71a), *ego* is accusative because it is the preposed *direct object* of the impersonal transitive verb *vybrosilo* (see Babby 1994); *izmučennogo*$_{LF.GEN}$ 'exhausted' agrees with *ego* 'him' in accusative case because the latter is the head of the TBC in which the LF *izmučennogo* is vertically bound.

(71) a. $[_{nPi}\ [_{afP\langle i\rangle}$Vkonec izmučennogo] # $[_{nPi}$ ego]] vybrosilo
completely exhausted$_{LF.ACC.M}$ him$_{ACC}$ threw$_{NEUTER}$
na bereg.
on shore
'Completely exhausted, he was washed up on the beach.'

b. *Vkonec izmučennyj # ego vybrosilo na bereg.
completely exhausted$_{LF.NOM}$ him$_{ACC}$ threw:N on shore

c. *$[_{nPi}\ [_{n'}\ [_{afP\langle i\rangle}$ Vkonec izmučennogo] $[_{n'}$ ego$_{ACC.M}$]] vybrosilo
completely exhausted$_{LF.ACC.M}$ him$_{ACC}$ threw$_{NEUTER}$
na bereg.
on shore
'*Completely exhausted he was washed up on the beach.'

(72) Imenno teper', bol'nomu, nepodvižnomu # emu
just now sick$_{LF.DAT}$ immobile$_{LF.DAT}$ him$_{DAT}$
ponadobilas' Liza.
was-necessary Liza
'It was precisely now, (since/when he was) sick and immobile, that he needed Liza.'

6. Conclusion

I have argued for the following analysis: the LF of the adjective in Russian is an s-*predicate* (afP_i), i.e. a maximal phrasal projection whose root node has an unlinked theta role associated with it; the SF is a *small clause* ($[_{afP}\ nP_{i.NOM}\ af'_{\langle i\rangle}]$) (see (73)). This structural difference accounts for their syntactic complementary distribution and the difference in meaning in sentence pairs like (3a–b). LFs are always vertically-bound adjuncts; SFs are always small clauses and thus obligatorily merge with the copula, whose phrasal projection provides a spec-position to which the clause's nominative subject raises to check both its case feature and T's EPP requirement. 'Predicate LFs' are contained in predicate nominal nPs, where they function as attributive modifiers of the head noun, which is canonically null.

(73) Schematic representation of SF and LF projections.

a. SF small clause: $[_{afP}\ nP_{i.NOM}\quad [_{af'}\ A\text{-}af_{SF}\ [_{AP\langle i\rangle}\ t_A \ldots]]]$

b. LF s-predicate: $[_{afPi}\quad [_{af'}\ A\text{-}af_{LF}\ [_{AP\langle i\rangle}\ t_A \ldots]]]$

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The name of the adjective

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On the basis of data from English, French, Hebrew and Spanish, this paper argues that (apparent) adjectives which function as nominals belong to two distinct classes. One small class consists of true nouns that are homophonous with adjectives but are not derived from them. The other one consists of true attributive adjectives which modify a null N, and whose range of interpretations cross-linguistically depends on the conditions on the licensing and identification of null Ns in a given structure and in a given language. We further claim that while the former group can appear in any context where nouns are typically licensed, the latter group is restricted to strong environments. This, we argue, is because referential *pro*, the assumed head of N-ellipsis structures, is always definite.

1. Introduction

This paper addresses the occurrence of (apparent) adjectives as nominals illustrated in (1). That the expressions in (1) are, indeed, nominals in some sense is beyond dispute, as indicated by the presence of articles as well as, at times, plural morphology. But are the lexical heads of the expressions in (1) indeed nouns? Could at least some of them be adjectives which modify a null or elided N?

(1) a. (the) American(s); the rich (English)

b. le(s) jeune(s); un petit; mon rouge (French)
the(.PL) young(.PL) a.MSG small my.MSG red

c. (ha-)xolim; (ha-)zaqen; (ha-)kxulim (Modern Hebrew)
(DEF-)sick.MPL (DEF-)old.MSG (DEF-)blue.MPL[1]

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1. In the glosses, the following abbreviations are used:

DEF	definite	OM	object marker
DET	definite determiner	PASS	passive
F	feminine	PAST	past
FUT	future	PL	plural
INDEF	indefinite	SG	singular
M	masculine	SPC	specific
NEG	negation		

d. el ciego; los mojados; una roja (Spanish)
DET.MSG blind.MSG; DET.MPL wet.MPL a.FSG red.FSG

An accompanying question concerns the interpretation of the expressions in (1), as well as the source of inter-language variation in the domain of (apparent) adjectives which function as nominals.

In what follows, we will show that adjectives which function as nominals do not constitute a uniform class, and that two cases need to be distinguished. On the basis of data from English, French, Spanish and Hebrew, we will argue that some apparent lexical 'adjectives' are indeed nouns (henceforth *Noms(A)*) which happen to be homophonous with adjectives. In the languages that we investigated, the set of Noms(A) is restricted. Interpretationally, they encode lexical meanings which may be related to, but which are clearly not directly derived from, the adjectival meaning. There are only scattered cases in which Noms(A) are arguably derived morphologically from adjectives, and none of them represent productive rules of word formation.

The larger, productive class of adjectival expressions which occur in nominal contexts, we argue, are true attributive adjectives. They are constructed in a nominal phrase, where they modify a null pronominal N, i.e., *pro* (and see also, among others, the works of Corblin 1990, 1995; Lobeck 1995; Sleeman 1996; Kester 1996). In turn, the range of interpretations that such a *pro* can receive, as well as cross-linguistic variation in its interpretation will turn out to depend on how it is identified and licensed in a given structure in a given language.

2. First attempt at differentiating Noms(A) and regular adjectives: English

In English, Noms(A) have clearly different properties from regular adjectives, and the nominal behavior of Noms(A) is easy to show – these are the only cases which may occur without a definite article or with a plural marking, the latter possible in English only for nouns and never for adjectives. They represent a very restricted class of lexical items. To the best of our ability to ascertain, there are only a handful of derivational suffixes in English which are systematically homophonous between N and A: forms suffixed with *-(ia)n* as in (2a), and forms suffixed with *-ist* as in (2b) . The other large (although not productive) class consists of bare stems, as in (2c):[2]

2. Another case of an affix which, as far as we can tell, is perfectly ambiguous between a nominal and an adjectival reading is *-i*, as in (i):

(i) (An) Israeli; (an) Iraqi; (a) Saudi; (a) Pakistani

(2) a. an American; two Russians; the Barbarians; three Franciscans; a Freudian
b. a communist; three pragmatists; the Baptists; behaviorists
c. a Greek; three Czechs; the Arabs

There is little reason to believe that the forms in (2a–b) are actually derived from adjectives. Thus observe the existence of forms such as those in (3), which have no adjectival correlate:

(3) a. (a) librarian(s); (a) physician(s); (a) comedian; (an) electrician; *very historian; *a logician office
b. *very linguist; *specialist dishes; *botanist enough; *florist displays

As for the forms in (2c), note that they carry no categorial information, and as such, may very well be category-less roots which inherit their category from their syntactic environment, thereby obviating the need to derive the Nom(A) from an adjective (cf. Fu, Roeper & Borer 2001; Marantz 1997; Borer 2005).[3] While a scattering of nouns with overt adjectival suffixes are attested, they do not even amount to a sub-regularity (cf. (4a–d)) and appear to be completely absent for some adjectival endings (cf. (4e–h)):[4]

(4) a. *a frantic; *three hectics; *an Icelandic
(but note: a Catholic; a heretic; a fanatic, a psychic, a psychotic)
b. *a destructive; *three oppressives; *a compulsive; *an obsessive
(but note: a manic-depressive; also an adjective)

The affix is new (it is not included in most lists of English affixes), and seems restricted to names of relatively recent countries. Lacking further information about its source and distribution, we relegate it to a footnote.

3. It is possible that phonological information informs the insertion of bare roots in adjectival and nominal environments, respectively. Thus note that roots ending in sibilants do not make good Noms(A) (*French*, *Dutch; Welsh*). However, while this may explain the failure of sibilant final suffixes such as *-ish* or *-ese* to acquire a nominal function (see (4e–f)), such an explanation clearly does not generalize to the other cases in (4), making a pure phonological explanation of the failure of homophony in these cases unworkable.

4. Note the grammaticality of *three roomfuls, three spoonfuls* which we take to be compounds, rather than affixed forms, given their measurement function.

c. *a reliant; *a consistent; *a persistent
(but note: a patient, an adolescent)
d. *the reliables; *the verfiables; *an edible (but note: a variable)
e. *the Japaneses; *a Portuguese
f. *the Spanishes; *an English; *three Polishes
g. *the beautifuls; *a harmful; *three gracelesses
h. *a virtuous; *the industriouses; *a repetitious

It is clear that the English Noms(A) in (2) do not mean an entity with whatever property would be denoted by the homophonous adjectives, but rather, describe the affiliation of individuals. Thus *Greeks* cannot mean, in any conceivable context, objects which originate in Greece, or which have the property of being Greek (e.g., *Greek works of art*). While the relationship between the adjective and the Nom(A) here is not idiosyncratic, the Nom(A) meaning represents a restricted set of objects with the relevant property. Cases of straightforward idiosyncrasy are attested as well, at times with *pluralia tantum*:[5]

(5) a. the rapids (in rivers); my shorts (pieces of clothing); blinds (window coverings)
b. a patient; a variable; edibles; a departed

These properties contrast with those of English expressions such as *the poor*. First, neither plural (definite or indefinite) nor the indefinite article are possible, as illustrated by (6a). In fact, the definite article *the* is obligatory (and note specifically that *these* and *those* are excluded). Second, the forms are oblivious to the existence of adjectival suffixation of all sorts, as illustrated by (6b). Finally, to the best of our ability to tell,

5. Frequently, it appears, the plural morpheme itself acts to convert adjectives or even bare roots to nouns, suggesting that it has a derivational, and not only an inflectional function. We set this matter aside here. We also set aside the question of why, *-able*, in particular, among adjectival suffixes, appears more amenable to this derivation (with thanks to an anonymous reviewer for pointing out this correlation):

(i) a. *a movable; *a floatable; *a breakable; *an inflatable; *a valuable, *a rich
b. BUT: movables; floatables; breakables; inflatables; valuables; riches

the construction is entirely productive and allows any adjective that can be plausibly predicated of humans:[6,7]

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6. Some comments are in order concerning the scope of the phenomenon that we are considering here. Specifically, we are excluding from consideration all cases which appear to be clearly elliptical, in referring back to an extremely recent or salient antecedent. For instance, after ordering tea in a restaurant, having the waiter ask 'cold or hot'? Or, presented with two shirts, being asked 'the blue or the red?' (We are informed by native speakers that in answering the latter, 'the blue' is not felicitous, and 'the blue one' is required.). Likewise, in Hebrew and French, we set aside cases of obviously elliptical use, as in Hebrew (i) (and see Glinert, 1989, pp. 110–111 on some other relevant cases of ellipsis), and French in (ii):

(i) ha-tmarim ha-'ele yeqarim, qne zolim
DEF-dates.MPL DEF-these expensive, buy cheap.MPL
'These dates are expensive, buy cheap ones.'

(ii) a. Mets le vase sur la table – non pas le cassé, l'autre.
'Place the vase on the table – not the broken (one), the other (one).'

b. De ces chiens, je préfère le tondu.
'Among these dogs, I prefer the shorn (one).'

It is within this class, we believe, that one also finds elliptical uses following numerical and quantificational expressions such as those in (iii), pointed to us by an anonymous reviewer:

(iii) a. Dan Brown has written many books but I only read one/two.
b. I only read one book by Dan Brown but he has written several/three.

And likewise ordinals, superlatives, and expressions such as *following, previous, other, another,* and *same*, all requiring an extremely salient and recent antecedent, unlike the cases discussed, e.g., *the poor*, *the sick*, etc. For some discussion of the distribution of such elliptical cases see Halliday and Hasan (1976) as well as Ronat (1977).

Finally, we are excluding the use of 'adjectives' as labels for themselves, as in (iv):

(iv) a. There are lots of blues in this paint store – I didn't expect that.
b. I hope I can do some good.

See, in particular, Section 4 for some relevant discussion.

7. A notable exception is the impossibility of using adjectives which have Nom(A) homophones in this group, to wit, the expressions in (i) can only have a Nom(A) interpretation, and cannot refer to, e.g., the American or Russian collective, on a par with, e.g., *the Welsh*, or *the English*:

(i) The American; the Russian; the behaviorist

Short of appealing to a blocking effect of some kind, we have no account for this fact at this time.

(6) a. The poor(*s); the sick(*s); *a pretty; *three sads, *these wise(es); *those lucky
b. The enabled; the silken; the beautiful; the English; the manic; the oppressive; the ugly; the happy; etc.

Expressions such as those in (6) are most commonly interpreted as having a generic force. As is typically the case for generic interpretations, they can range over pluralities, most typically human groups or possibly kinds (i.e., all those who are sick, all who are poor, etc.). Alternatively, at least sometimes, they can be interpreted as referring to a mass kind, as in (7) (we are grateful to an anonymous reviewer for pointing this to us):[8]

(7) a. (He is trying to achieve) the impossible.
b. The blue overcame the yellow.
c. (He wanted to fully control) the unexpected.

Given the observed tendency of Noms(A) to refer to humans (and see also below, in French and Hebrew), it may appear at first sight that Noms(A) and forms such as those in (6) do have something in common. The similarity, however, is a misleading one. We already observed that many Noms(A) do not, in fact, refer to humans, nor clearly are all cases of the type illustrated in (7). In what follows we will argue that the syntax of these expressions is very different. Specifically, while Noms(A) are true nouns, we will suggest that the lexical expressions in (6)–(7) are true adjectives which modify a *pro* as in (8). In the absence of licensing features for such a *pro* in English, it is interpreted as generic rather on a par with so-called arbitrary PRO, or, possibly, the covert benefactive in sentences such as (9) (and see Epstein 1984; Lebeaux 1984 and subsequent literature for the argument that the covert object of *easy* in (9) is a universal/generic *pro* which controls the infinitival null subject):[9]

(8) *the* A [$_N$ *pro*] (henceforth *Adj-pro* constructions)
(9) It is easy *pro-universal* [PRO to leave]

Once other languages are considered, we will find that unpredictable meanings of Noms(A) persist, but in the presence of overt identifiers for *pro*, the generic restriction vanishes.

8. There are some exceptions to this generalization, to wit, 'the Good, the Bad and the Ugly' as a film title with a singular reference.

9. Cases of arbitrary *pro* or PRO in classical contexts with mass reference are difficult if not impossible to construct, as these are typically interpreted as human. If, however, Epstein (1984) is correct in arguing that these all reduce to a benefactive control, this may follow from constraints on null benefactives, and would thus fail to apply to *Adj-pro* contexts which are otherwise licensed.

3. French and Hebrew

At first glance, it appears dubious that French or Hebrew actually have a distinction between what we referred to above as Noms(A) and *Adj-pros* as in (8). We will argue, however, that both do exhibit the relevant distinction, allowing the forms in (10a) to be true nouns with the relevant interpretation as per glosses (our Noms(A)) (see also Marandin 1996; 1997 for French), but restricting the forms in (10b) to adjectives in French (see also Corblin 1990, 1995; Lobeck 1991, 1993, 1995 & Sleeman 1996 for a *pro* analysis of NP-ellipsis in French). Similarly, the forms in (11a) in Hebrew may be Noms(A) (with the relevant interpretation), but not so the forms in (11b) which may only be adjectives:[10,11]

(10)	a.	jeune;	aveugle;	mort;	marié;	sauvage	
		youth;	blind man;	dead man;	groom;	savage	
	b.	rondelet;	énervé;	joyeux;	lent;	excessif;	faible
		slightly fat;	edgy	joyful;	slow;	unmoderate;	weak

(11)	a.	caʿir;	šote;	zaqen;	xak̲am
		youth;	fool/village idiot;	elder (lit. old)	sage (lit. wise)
	b.	nasuy;	ʾarok̲; yašar;	raze	
		married;	long; straight;	thin	

The plurality test that was relevant in English cannot be used in French or in Hebrew. As both plural nouns and adjectives modifying a plural noun must bear a morphologically identical plural agreement, both the putative Noms(A) and the adjectives in the putative *Adj-pros* (with a plural *pro*) would be marked as plural:

(12)	a.	jeunes;	aveugles;	morts;	mariés;	sauvages	
		youth.PL	blind.PL	dead.PL	groom.PL	savage.PL	
		youths	blind men	dead men	grooms	savages	
	b.	rondelets;	énervés;	joyeux;	lents;	excessifs;	faibles
		fat.PL	edgy.PL	joyful.PL;	slow.PL;	unmoderate.PL	weak.PL

10. In view of (10b), the class of adjectives that can appear with a determiner and without an overt noun in French is, we believe, less restricted than previously claimed in the literature (see, for instance, Sleeman 1993; Marandin 1997), and includes 'classifying' adjectives that are not clearly colors (*rouge* 'red'), ordering (*précédent* 'preceding', *suivant* 'next') or measuring (*grand* 'tall', *petit* 'small').

11. Note that while in French, *marié,* lit. 'married', is a Nom(A), meaning 'groom' or 'bride', depending on agreement, in Hebrew *nasuy*, lit. 'married', is an *Adj-pro*, meaning a 'married one'. Clearly, then, the selection of a particular lexical item as a Nom(A) or *Adj-pro* is not a universal one, nor would we expect it to be.

(13) a. ceʿir.im; šot.im; zqen.im; xaḵam.im
youth.PL fool.PL/village idiot.PL elder.PL (lit. olds) sage.PL (lit. wise(s))

b. nesuʾ.im; ʾaruk.im; yešar.im; raz.im
broken.PL long.PL straight.PL thin.PL

Furthermore, the obligatoriness of a definite article and the impossibility of the indefinite article attested in English are absent. Thus in French, where the articles distinguish between definites and indefinites and between plurals and singulars all forms in (10) can take the full array of articles, and neither (14a) nor (14b) need to be interpreted as generic (although, of course, the plural definite forms may be thus interpreted):

(14) a. Noms(A): un jeune; le jeune; les jeunes; des jeunes
a youth; DET.SG youth; DET.PL youth.PL; INDEF.PL youth.PL;

b. *Adj-pro*: un faible; le faible; les faibles; des faibles
a weak; DET.SG weak; DET.PL weak.PL; INDEF.PL weak.PL

Hebrew does not have an indefinite article, and its definite article is not marked for number. When we consider the distribution of (bare) indefinites and definite expressions in the context of the paradigms in (11) and (13) we note that both are possible for Noms(A) and for *Adj-pros* alike, for both singular and plural forms. As in French, generic reading is not necessarily attested for the *Adj-pros* (although see below for more discussion of this point):[12]

(15) a. ha-caʿir; ha-ceʿir.im; ha-ʿiver; ha-ʿivr.im
DEF-youth DEF-youth.PL DEF-blind man DEF-blind man.PL

b. ha-nasuy; ha-nesuʾ.im; ha-mup̱ta; ha-mup̱taʿ.im
DEF-married DEF-married.PL DEF-surprised DEF-surprised.PL

As there appears to be no obvious distinction between Noms(A) and *Adj-pros* in French and Hebrew, can we really maintain that, like in English, they represent two distinct classes? As it turns out, a closer scrutiny of the distribution of the forms in (10) and

12. Attributive adjectives in Hebrew agree with the modified nouns in gender, number and definiteness (cf. (i/ii)), allowing the article in (15), at least prima facie, to be associated both with a definite nominal and with a modifying adjective which agrees with a definite null N. We set this issue aside here for reasons of space.

(i) ha-simla *(ha).yap̱a; ha-migdal *(ha-)gaḇoha; (singular)
DEF-dress.F DEF-pretty.F; DEF-tower.M DET.tall.M
the pretty dress *the tall tower*

(ii) ha-smal.ot *(ha-)yap̱.ot; ha-migdal.im *(ha-)gboh.im (plural)
DEF-dress.FPL DEF-pretty.FPL DEF-tower.MPL DEF-tall.MPL
the pretty dresses *the tall towers*

(11) in French and Hebrew respectively reveals some important differences. While our Noms(A), in both languages, have a distribution identical to that of common nouns, *Adj-pros* turn out to be restricted to strong environments.

We first consider French nominals with the indefinite plural *des* article, which, for common nouns, may receive either a weak (existential) or (under certain conditions) strong (partitive; presuppositional) reading (Milsark 1974; de Hoop 1992; Bosvelt-de Smet 1997). Thus (16), for instance, is ambiguous between a reading where the subject wants to buy any pair of shoes (the weak reading, asserting existence), and another reading where there are some specific shoes that the subject wants to buy (the strong reading):

(16) Elle veut acheter des chaussures. (weak/strong readings)
she wants buy INDEF.PL shoes
'She wants to buy shoes.'

Non-existential readings indefinites may give rise to, and that are subsumed under the notion of strong reading that we will accept here following de Hoop (1992), include the referential reading (*A dog bit me yesterday)* (Fodor & Sag 1982), the partitive reading (*Few participants were French*) and the generic reading (*Boats float*). *Des*-indefinites in French can accordingly have a strong reading (Bosvelt-de Smet 1997):

(17) a. Des amis (que je n´avais pas vu depuis 10 ans) m' ont
INDEF.PL friends (that I NEG had not seen for 10 years) me have
appelée hier. (referential)
called yesterday
'Some friends (that I had not seen for 10 years) called me yesterday.'

b. Paul a réparé des bicyclettes (mais pas toutes). (partitive)
Paul has repaired INDEF.PL bicycles (but not all)
'Paul repaired some bicycles (but not all).'

c. Seuls des spécialistes peuvent résoudre ce problème. (generic)
only INDEF.PL specialists can resolve this issue
'Only specialists can solve this issue.'

As it turns out, Noms(A), for instance *des jeunes*, are ambiguous in exactly the same way, and both a strong and a weak readings are available, as illustrated by (18a) (strong reading) and (18b) (weak reading, existential context):

(18) a. <u>Des jeunes</u> que je ne connaissais pas m'ont aidé. (strong referential)
INDEF.PL youths that I NEG knew NEG me-have helped
'Some youths that I did not know helped me out.'

b. Il y a <u>des jeunes</u> qui fument dehors. (weak)
there is INDEF.PL youths who smoke outside
'There are youths who are smoking outside.'

This is not the case for our *Adj-pros*. Here, indefinites can only get a strong reading. They are felicitous in the strong presuppositional context in (19a) but are excluded in the weak, existential contexts in (19b):[13]

(19) a. Des énervés que je voyais manifester ont mis le feu
INDEF.PL edgy.PL that I saw demonstrate have put the fire
aux voitures. (strong)
to.the cars
'Edgy individuals that I was watching demonstrate put the cars on fire.'

b. *Il y a des énervés dans la manifestation. (weak)
there are INDEF.PL edgy.PL in the demonstration

Other relevant contexts exhibit precisely the same behavior. Noms(A) can occur in the scope of negation with the article *de*, an environment which licenses only weak readings, but not *Adj-pros*, as illustrated by (20):

(20) a. Elle n'a pas rencontré de jeunes. (weak)
she did not meet de youth.PL
'She did not meet any youth.'

b. *Ils n'ont pas interrogé d'énervés. (weak)
they did not interrogate de edgy.PL

When negation occurs with the article *des*, which, in opposition to *de*, licenses strong readings, both Noms(A) and *Adj-pros* are licit:

(21) a. Elle n'a pas rencontré des jeunes. (strong reading)
she did not meet INDEF.PL youth.PL
'She did not meet some (of the) youths.'

b. Ils n'ont pas interrogé des énervés. (strong reading)
they did not interrogate INDEF.PL edgy.PL
'They did not interrogate (some of the) edgy ones.'

Interestingly, the use of true *Adj-pros* contrasts with what we may refer to as *Adj-en* forms, and which appear, at first sight, to involve bare 'nominal' adjectives (i.e., with no overt head N) and which are possible in weak contexts:

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13. *Des*-adjectives are possible in existential constructions, as in (19b), with a taxonomic reading only, where they assert the existence of a type (e.g., an edgy type of individuals) rather than individuals themselves. Taxonomic readings of *des-NPs*, more generally, are usually favored by a weak context in French (Bosvelt-de Smet 1997). We have no explanation for this fact, and will leave it aside here.

(22) a.

Il y	<u>en</u>	a	<u>des énervés</u>		à	la	manifestation.
there	of.it	is	INDEF.PL	edgy.PL	at	the	demonstration

‘There are edgy ones (out of a presupposed group of individuals) in the demonstration.’

b.

Ils	n’<u>en</u>	ont	pas	interrogé	<u>d’énervés.</u>	
they	NEG-of.it	have	not	interrogate	de	edgy.PL

‘They did not interrogate edgy ones. (out of a group)’

In actuality, the grammaticality of (22) only serves to emphasize the ungrammaticality of true *Adj-pros* in these contexts. In (22), the appearance of a ‘bare’ nominal adjective emerges as a result of *en*-cliticization, and there is little reason to assume the existence of a null pronominal N. Without offering a full analysis of *en*-cliticization, it is clear that what follows the adjective in these cases is either a phonologically null copy left by the movement of *en* itself, or alternatively, a partitive null PP or its copy, however licensed. Under any scenario, we do not expect the construction to display the properties of a definite N pronominal. The contrast, thus, nicely highlights the prohibition on weak contexts specifically for true null N heads, but not otherwise. Turning now to Hebrew, we find identical effects, with Noms(A) having the distribution of common nouns, and *Adj-pros* allowed exclusively in strong contexts.

As is true for numerous languages (including Spanish, Italian, the Slavic languages, some Germanic languages), Hebrew does not allow weak expressions in a pre-verbal position, thereby providing us with a structural test for the distribution of weak/strong readings. (23a) has a strong reading, and (23b) only has a generic interpretation (negative contexts for non-generic occurrences nicely highlight the strong partitive reading in these cases):

(23) a.

šloša	s<u>p</u>arim	(lo)	yikat<u>b</u>u	ha-šana	‘al	zihum	’avir
three	books	(not)	write.PASS.FUT	this.year	about	pollution	air

‘Three predictable books (of a set) will (not) be written this year about air pollution.’ (e.g., they are contracted already)

b.

s<u>p</u>arim	‘al	zihum	’avir	nimkeru	be-šana	še-‘a<u>b</u>ra
books	about	pollution	air	sold.PAST	in-year	last

‘Books about air-pollution used to sell last year.’

In turn, the subject in Hebrew may occur post-verbally freely if any constituent is fronted. In such post-verbal contexts, both weak and strong expressions are allowed, but bare plurals must receive an existential interpretation. (24a–b) thus contrast with (23a–b):

(24) a.

ha-šana	(lo)	yikat<u>b</u>u	šloša	s<u>p</u>arim	‘al	zihum	’avir
this.year	(not)	write.PASS.FUT	three	books	about	pollution	air

‘Three (predictable) books will (not) be written this year about air-pollution.’ (either synonymous with (23a) or weak, under straightforward numerical reading)

b. be-šana še-ʿabra nimkeru sparim ʿal zihum ʿavir
in-year last sold.PAST books about pollution air
'Last year some books about air-pollution were sold.'

Armed with these descriptions, consider the distribution of Noms(A) and *Adj-pros*:

(25) Noms(A), pre-verbal subject:

a. šloša ceʿirim (lo) niknesu la-bar lištot
three youths (not) entered to.DEF-bar to drink
'Three (of the) youths (didn't) entered the bar to have a drink.'
(strong reading only)

b. ceʿirim šatu ba-bar ha-ze be-šana še-ʿabra
youths drank in.DEF-bar DEF-this in-year last
'Young people drank in this bar last year.' (generic, i.e., it was the trendy place to drink for youngsters)

(26) Adj-pro, pre-verbal subject:

a. šloša razim (lo) niknesu la-bar lištot
three thin(s) (didn't) entered to.DEF-bar to drink
'Three (of the) thin guys entered the bar to drink.' (strong reading only)

b. razim šatu ba-bar ha-ze be-šana še-ʿabra
thin(s) drank in.DEF-bar DET.this in-year last
'Thin types drank in this bar last year.' (generic, i.e., it was the trendy place to drink for thin people)

(27) Noms(A), post-verbal subject:

a. ha-boqer (lo) niknesu šloša ceʿirim la.bar lištot
this morning (not) entered three youths to-DET.pub to drink
'This morning three youths (didn't) entered the bar to drink.'
(strong and weak reading)

b. ba-bar ha-ze šatu ceʿirim be-šana še-ʿabra
in.DEF-bar DET.this drank youths in-year last
'Young people drank in this bar last year.' (weak reading only)

(28) Adj-pro, post-verbal subject:

a. ha-boqer (lo) niknesu šloša razim la-bar lištot
this morning (not) entered three thin(s) to.DEF-pub to drink
'Three thin guys entered the bar to drink.' (strong reading only)

b. *be-šana še-ʿabra šatu razim ba-bar ha-ze
in-year last drank thin(s) in.DEF-bar DET.this

As expected, in the strong pre-verbal contexts, no difference is attested between Noms(A) and *Adj-pros*, and both exhibit a generic reading when plural and bare. However, post verbally, where bare plurals may only be weak indefinites, Noms(A) are possible, as in (27) but *Adj-pros* are blocked, as in (28).

Further evidence comes from the impossibility of *Adj-pro*, vs. the acceptability of Nom(A), in existential contexts, both affirmative and negative (we note that bare singulars in Hebrew only have a weak interpretation):

(29)	a.	yeš	šloša	ceʿirim/*šloša	razim	ba-xeder
		exist	three	youths/*three	thin (ones)	in.DEF-room
	b.	ʿeyn	ceʿirim/*razim	ba-xeder		
		NEG.exist	youths/*thin (ones)	in.DEF-room		
	c.	yeš	ʿeyze	caʿir/*ʿeyze	raze	ba-xeder
		exist	some	youth/some	thin (one)	in.DEF-room

Finally, in an interesting illustration of the shared property here between French and Hebrew, we note the following:

(30)	a.	ʿani	ma'adifa	razim	
		I	prefer	thin(s)	
	b.	Je	préfère	les	fins/*des fins
		I	prefer	DET	thin(s)/INDEF.PL thin(s)
		'I prefer thin ones.'			

What appears at first sight as a contrast between French and Hebrew is in actuality exactly what is expected, once we recall that objects of psych verbs require a generic reading of a plural object, and that generics in Hebrew are bare plurals, but definite plurals in French. Of course, *Adj-pros* in English, being generic and obligatorily accompanied by a definite article, have the distribution of strong nominals as well, thus patterning in this respect with French and Hebrew.

Once a clear distinction has been established between the syntactic distribution of Noms(A) and *Adj-pros*, we can return to the relevant examples and note that just as in English, it is Noms(A) which have an idiosyncratic or a restricted meaning. French *le petit* means "the child, the cub, the youngest", and does not range freely over anything or anybody with the *petit* 'small' property.[14] Similarly *la mariée* refers to "the bride", and not to any married woman. Hebrew shows similar effects. *Xole*, literally 'sick' does not range over anybody who is sick, but means "patient"; *šote*, literally 'stupid' does not range over anybody who is stupid, but rather means the societal medieval "fool" or "village idiot"; *xak̲am*, literally 'wise', means "a sage", etc. Entirely idiosyncratic readings are available as well, as in French *proche* and Hebrew *qarob̲*, literally 'close', but as a noun "a kin, a relative" or Hebrew *leb̲anim*, "linen", literally 'whites', and French *la poudreuse* "powder snow", literally 'powdery' or *la blanche* "heroine", literally 'white'. In contrast

14. *Petit*, 'small' just like *grand* 'tall', and other measuring adjectives, also has an *Adj-pro* use, in French, in which case it does range freely over anything and anybody small, as expected; see below.

adjectives in *Adj-pros* have varied meanings including both persons and objects, with the latter exemplified by cases such as French *les mouillés* 'the wet(s)', *les rouges* 'the red(s)',*un sale* 'a dirty', *une chère* 'an expensive(.F)', and Hebrew *ha-vrudim* 'the pink(s)', *ha-metuqim* 'the sweet ones', *ha-yab̲eš* 'the dry', and similar cases.

4. More on *pro* in *Adj-pro* and otherwise

4.1 The meaning of *pro* in *Adj-pro*

We will assume that the meaning of *pro* in *Adj-pro* constructions corresponds to that of (potentially overt) definite pronouns, where by definite pronouns we mean specifically those pronouns which Heim & Kratzer (1998) analyze as E-type pronouns, and which Elbourne (2000) analyzes as (pronominal) definite articles. We will further follow Heim & Krazer (1998) in assuming that such pronouns are fundamentally interpreted on a par with definite descriptions, and just like definite descriptions, pick a unique (set of) contextually salient individual(s). The bottom line, then, is that the interpretation of a phrase such as *les cassés* or *des cassés* (in which *cassés* is a regular attributive adjective) is fundamentally like that of definite descriptions, and hence strong.[15] As such, we are not dealing with those pronominal cases which Heim & Kratzer (1998) identify as requiring an explicit antecedent, or with the cases enumerated in Footnote 6, which we believe to be cases of ellipsis. Note, in this context, that the overt indefinite English pronoun *one*, is not restricted to occur in strong environments, as illustrated by the grammaticality of (31).

(31) a. I am looking for a competent one.
b. There isn't a tall one in sight.

It therefore emerges that the interpretation associated with the covert pronoun in *Adj-pro* constructions does not correspond to that of a putative covert indefinite pronoun with the properties of English *one*, and in fact, there is little reason to suppose that English, French or Hebrew have such an indefinite null pronoun. More strikingly, we will show in Section 5 that Spanish does not have such an indefinite null pronoun either, although Spanish, like English, has an overt indefinite pronoun (*uno*, as we shall

15. We note, interestingly, that at least in the context of *Adj-pro*, such a null pronoun may be either definite or specific, and that in the latter case it may be associated with an indefinite article as in *des cassés.* In turn, it is not clear that the distinction between specific (but indefinite) and definite is marked on pronouns altogether, whether overt or null, making the extension of the analysis of definite description to specific cases in the case of pronouns plausible. As we shall see directly, definite descriptions and specific readings (in pronominals as well as in lexical nominals) require a syntactic movement to D to be licensed.

argue), as well as a definite *pro* and an *Adj-pro* construction, which, as in Hebrew and French, must be strong.

As is clear from the structures we have been proposing, our *pro* does not correspond to the entire DP, but rather, to some head within it, most likely N. It would appear legitimate at this point, then, to raise a question concerning the typology of null pronominals, focusing, specifically, on the question whether there is any particular reason to expect N-*pro* to behave like a D-*pro*. As we will proceed to show shortly, however, the question may very well turn out to be a moot one. A more careful consideration of the properties of *Adj-pros* in Hebrew will suggest that all definite (null) pronominal interpretations involve a 'lexical' *pro* terminal, effectively an N-*pro*, and that so-called D-*pro* is simply a case of a DP projection with nothing but a *pro* in it.

Another important point will emerge from the discussion of some properties of Hebrew null definite pronominals: although they must be strong, that 'strength' needs to be licensed in a particular structural position, specifically in D, thereby requiring the movement of such *pro* from what we assume is its base position in N. Without pursuing in great detail any particular theoretical mechanism that will ensure such movement, we note that a simple checking system, or alternatively, a range assignment system as in Borer (2005) will ensure the obligatoriness of such movement. We return to this matter below.

4.2 Hebrew *Adj-pro* and ramifications

Hebrew, it appears, presents a prima facie problem for the assumption that *Adj-pro* is strong. The relevant cases involve a comparison between the distribution of Hebrew (overt) bare singular nominals and bare singular *Adj-pros*. Bare singular nouns in Hebrew may only receive a weak interpretation (cf. Borer, 2005). Because weak interpretation is not available in Hebrew in the pre-verbal position, such bare singular nominals are blocked in those contexts, as illustrated by the contrasts in (32)–(33):

(32) a. *yeled (lo) yabo la.qaxat 'et ha-matanot
boy (not) come.FUT to.take OM DEF-present (OM=object marker)

b. 'eyze yeled (lo) yabo la.qaxat 'et ha-matanot
some boy (not) come.FUT to.take OM DEF-presents
'A (specific) boy will (not) come to take up the presents'
(strong reading only)

(33) a. ha-boqer (lo) yabo yeled la.qaxat 'et ha-matanot
this morning (not) come.FUT boy to.take OM DEF-presents
'This morning, a boy will (not) come to take the presents'
(weak reading only)

b. ha-boqer (lo) yabo 'eyze yeled la.qaxat 'et ha-matanot
this morning (not) arrive.FUT some boy to.collect OM DEF-presents
'This morning, a boy will (not) come to take the presents' (strong, weak)

Suppose we assume, following the original intuitions of Diesing (1992), and Longobardi (1994), and adopting the specific execution in Borer (2005), that the reason for the obligatory weakness of Hebrew bare singulars is tied to the schematic structure in (34):[16]

(34) $[_{DP}$ *e* $[_{\#P}$ *sg* $[_{NP}$ N]]]

In 34, *e*, heading D, is an open value, and must be assigned range, or effectively, be bound. As singulars may not typically be bound by a generic operator for reasons that we need not enter into in this paper, *e* in (34) may only be bound by an existential operator, and hence must be weak. On the other hand, the domain of the existential operator arguably excludes pre-verbal positions. It thus follows that bare singulars may not occur outside the domain of existential closure, i.e., they are excluded pre-verbally.

No such effects are expected, or attested, when the singular is accompanied by a number specification, by a quantifier, or, in a language that has indefinite articles, by a singular indefinite article. In such cases, the number specification itself, or alternatively, a quantifier or an article, may raise to D, thereby effectively binding it and licensing the structure. As expected, the emerging reading must be strong in the pre-verbal position, and the nominal, of course, is not a *bare* singular, as illustrated by, e.g., (32) above, and schematized in (35) with the Hebrew quantifier *ʾeyze*, 'some', itself allowing both weak and strong readings in the appropriate context (cf. (33b)):

(35) a. $[_{DP}$ *e* $[_{\#P}$ ʾeyze *sg* $[_{NP}$ N]]] (weak, existentially closed $[_{D}$*e*])
b. $[_{DP}$ ʾeyze $[_{\#P}$ ~~ʾeyze~~ *sg* $[_{NP}$ N]]] (strong)

With this description in mind, let us return to the Hebrew *Adj-pro*. Crucially, what we find is that they exhibit a behavior identical to that of bare singular nominals in the pre-verbal position. If not accompanied by a number or a quantifier (recall that Hebrew does not have an indefinite article), they are ruled out in that position, as illustrated by (36). However, unlike bare singular nominals, a singular *Adj-pro* is barred in post-verbal positions as well, hence giving rise to a contrast between (36b) and (33b) above:

(36) a. *raza (lo) ni<u>k</u>nesa la.bar lištot
'thin.F' (not) entered to.DEF-bar to drink

b. *ha-boqer ni<u>k</u>nesa raza la-bar ve-biqša
this morning entered 'thin.F' to.DEF-bar and-asked
le.hištameš ba-telefon
to.use in.DEF-telephone

16. We are abstracting away here from aspects of nominal structure which are not directly relevant to the discussion. See Borer (2005) for a detailed discussion of the internal structure of nominal expressions.

We are now faced with a bit of a paradox. If, as we have asserted, *Adj-pro* is fundamentally like a definite pronoun, then we expect it to behave essentially like a definite description. But if so, there is no clear reason why it should be barred preverbally in Hebrew, or, for that matter, post-verbally where definite descriptions are otherwise licit. On the other hand, if a bare *Adj-pro* is, essentially, a species of bare singulars, it is not clear why it is not licensed in weak contexts, e.g., post-verbally with existential closure.

The paradox, however, can be resolved if we consider in greater detail the properties of Hebrew singulars, as well as those of Hebrew null pronouns. In Borer (2005) it is suggested that the unavailability of bare singulars with a strong reading is not a syntactic or a semantic fact, but rather, a morpho-phonological fact. Specifically, it is proposed that a strong reading *can* be associated with singulars in Hebrew, when the singular noun itself raises to D, thereby obliterating the unbound [$_D$*e*]. However, the resulting form does not spell out, strictly speaking, as a bare singular, but rather, as a singular with a specificity marking, as in (37). This specificity marking is associated with all strong occurrences of otherwise bare singulars, regardless of whether they are pre- or post-verbal, as (37b) illustrates:

(37) a. yalda *(.xat) ni<u>k</u>nesa la-kafe lištot
girl *(.SPC.F) entered to.DEF-café to drink (SPC=specific)

b. ha-boqer ni<u>k</u>nesa yalda(.xat) la-kafe lištot
this morning entered girl(.SPC.F) to.DEF-café to drink

Concretely, and departing slightly from Borer (2005), suppose we assume that the derivation involves moving the entire NP, or possibly even a larger constituent, to [Spec, DP], thereby effectively binding [$_D$*e*]. The circled syntactic representation in (38a) is spelled out as a bare singular (in this case *yalda* 'girl'), while the circled syntactic representation in (38b) is spelled out as a singular plus a feminine specificity making (in this case *yalda.xat*):

(38) a. [$_{DP}$*e* [$_{\#P}$ N.sg.f [$_{NP}$ ~~N~~]]]
↓
yalda
'girl'(weak)

b. [$_{DP}$ [$_{\#P}$ N.sg[$_{NP}$~~N~~]] *e* ~~[$_{\#P}$ N.sg[$_{NP}$ N]]]~~
↓
yaldaxat
'some (specific) girl' (strong)

We now find out that singular 'bare' *Adj-pro* constructions *can* occur, both pre-verbally and post-verbally and with a strong reading, but only when accompanied with specificity marking, as the following cases illustrate:

(39) a. raza.xat nixnesa la-kafe lištot
thin.F.SPC.F entered to.DEF-café to drink

b. ha-boqer niknesa raza.xat la-kafe lištot
this morning entered thin.F.SPC.F to.DEF-café to drink

The structure for the *Adj-pro* in such cases is a straightforward one, involving the movement of the entire constituent containing the adjective and the null N to [Spec,DP], and the resulting spellout of the configuration with a specificity marker:

(40) [DP [#P *pro* [A [NP N]]] *e* ~~[#P *pro* [A [NP N]]]]~~
↓
razaxat
'some (specific) thin one' (strong)

It thus emerges that the asymmetry between singular nominals and singular *Adj-pro* is maintained, but only in post verbal positions. In such positions bare singular nominals, with a weak reading exclusively, are licit, i.e., they need not move to [Spec,DP]. An *Adj-pro*, on the other hand, is not. This follows, of course, if *Adj-pro* absolutely cannot receive a weak reading, and may only be licensed post-verbally if it moves to [Spec,DP], a movement that results in the emergence of an overt specificity marker.

An obvious explanation for the contrast between (36) and (39): the ungrammaticality of a 'bare' *Adj-pro* in both pre- and post-verbal position does not emerge from the fact that they are not licensed syntactically or semantically in those contexts. Rather, it follows from the fact that *pro*, in these constructions, must move to D to bind it, on a par with the movement of overt nominal in cases such as (38). However following this movement, it must spell out in conjunction with specificity marking and cannot occur bare. As such, it is the equivalent of structures such as those in (41), in which an overt nominal accompanied by an adjective moves to [Spec,DP], resulting in specificity marking:

(41) a. [DP *e* [#P *yalda*.sg [*raza* [NP ~~*yalda*~~]]]]
girl.f thin.f

b. [DP [#P *yalda*.sg [*raza* [NP *yalda*]]] *e* ~~[#P *yalda*.sg [*raza* [NP *yalda*]]]]~~
girl.f thin.f
↓
yalda razaxat

If this analysis is on the right track, note, it emerges that at least in Hebrew, *pro* must move to D to be licensed, and that once such movement takes place, it is subject to

whatever universal or language specific requirements may apply to such movement. In Hebrew, such movement is associated with particular spellout requirements, involving the specificity marker *xad/xat*. In turn, note, the specificity marker is a phonological clitic and it requires a phonological host. In (41b), it is the adjective, which is phonologically overt, thereby supporting the specificity clitic. On the other hand, under the assumption that *pro* by itself is not an appropriate host for such a spellout, it emerges that the movement of a bare *pro*, without an adjective, to D in Hebrew should be illicit.

This conclusion, we note, is not without ramifications. Specifically, it means that bare *pro* (with a definite pronominal interpretation) cannot be licensed in Hebrew. Such a conclusion, at first sight, appears to fly in the face of the existence, in Hebrew, of definite pro-drop, as in (42):

(42)	a.	'ak̲alti	gb̲ina	'ak̲alnu	gb̲ina		
		ate.1SG	cheese	ate.1PL	cheese		
		'I ate cheese'		'we ate cheese'			
	b.	'ak̲alta	gb̲ina	'ak̲altem	gb̲ina/	'ak̲alten	gb̲ina
		ate.2MSG	cheese	ate.2MPL	cheese/	ate.2FPL	cheese
		'you (m.sg) ate cheese'		'you (pl) ate cheese'			

Viewed differently, this proposal may, in fact, turn out to correlate very well with otherwise established facts of Hebrew pro-drop. As is well known, Hebrew does not allow pro-drop in 3rd person, giving rise to the ungrammaticality of the forms in (43), when contrasted with those in (42):

(43)	a.	*'ak̲al	gb̲ina
		ate.3MSG	cheese
		('he ate cheese')	
	b.	*'ak̲la	gb̲ina
		ate.3FSG	cheese
		('she ate cheese')	
	c.	*'ak̲lu	gb̲ina
		ate.3PL	cheese
		('they ate cheese')	

It now turns out that the impossibility of pro-drop in Hebrew 3rd person is in fact explained directly by the assumption that, on a par with bare nouns, 3rd person pronouns must move to D, and thus fall under the specificity spellout requirement. In turn, 1st and 2nd null pronouns appear to be excused from such a restriction. Suppose now that we assume that 1st and 2nd person agreement, realized in these cases on the verb, and transmitted, or checked, by assumption, onto *pro,* are themselves a variant of specificity marking, an assumption which is plausible given the highly specific nature of 1st and 2nd person discourse participants (and

see Harley & Ritter, 2002 for some relevant discussion). If this is the case, then such marking would be expected to occur in complementary distribution with the specificity markers *xat/xad*, and more concretely, for Hebrew, it gives rise to the licensing of 1st and 2nd *pro* without overt specificity marking, a possibility that is excluded for 3rd person null pronouns.[17] Note now that as adjectives never agree in person, the default person for *pro* in *Adj-pro* constructions must be 3rd. In that context, however, but not in the context of a bare 3rd person *pro*, the specificity marker may spell out on the adjective, which is of course phonologically overt, thereby allowing 3rd person *pro* to occur in contexts where it could not survive without modification.

Note now that while our analysis of *Adj-pro* crucially postulates *pro* as an N head, its extension gives rise to the strong possibility that *pro*, universally, is always an N head. Specifically, note that we must assume that in the absence of an article, in Hebrew, *pro* must move to D to be licensed. Suppose we extend this analysis to other languages as well – in the absence of an article, *pro* must move to D. If true, so-called D-*pro* have, in fact the structure in (44):

(44) $[_{D}$ $[_{\#}$ *pro* $[_{N}$ ~~*pro*~~]] e ~~$[_{\#}$ *pro* $[_{N}$ *pro*]]]~~

The difference between, e.g., Italian or Spanish on the one hand and Hebrew on the other hand now does not revolve around the existence of the structure in (44), but rather, around its spellout properties – in Hebrew, a special spellout requirement is in place, effectively blocking (44) in the absence of either 1st or 2nd verbal inflection, or binding (cf. fn.18). No such extra restriction is present in Italian and Spanish, giving rise to free pro-drop.[18]

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17. The account of selective *pro* drop in Hebrew given in Shlonsky (1997) follows, in some respects, a similar line to the reasoning given here. Like us, Shlonsky assumes that *pro* must be in D, and that the ungrammaticality of 3rd person null pronouns stems from their inability to support morphological affixation. The affixation under consideration, however, is person marking, not specificity marking.

18. We note that 3rd person *pro* in Hebrew, although not licensed as a definite pronoun, is licensed as a bound variable in context such as those in (i):

(i) a. Rina ma'amina še-tacliax
Rina believes that-succeed.FUT3F
'Rina$_i$ believes that she$_i$ will succeed'

b. kol geb̲er ma'amin še-yihiye populari 'im yirze
every man believes that-be.FUT3M popular if thin. FUT3M
'Every man$_i$ believes that he$_i$ would be popular if he$_i$ becomes thin'

c. 'ap̲ 'iša lo ma'amina še-tacliax
no woman no believe that-succeed.FUT3F
'no woman$_i$ believes that she$_i$ will succeed'

We end this section with an interesting puzzle – in both Hebrew and French, by no means related languages, *Adj-pro* may not occur with a universal distributive quantifier (45b), (46b) (although they are licensed with a non-distributive universal (45a), (46a) or with the negation of a distributive universal (45c), (46c)). While a full understanding of this fact awaits further investigation, we note that typologically, it lends support to our claim that the restrictions on *Adj-pro* constructions are general and their occurrences in unrelated languages trace their sources to similar grammatical factors:

(45) a. kol ha-nesu'ot ‘azḇu
all DEF-married.f(s) left.PL
‘All the married women left.’

b. *kol nesu’a ‘azḇa
every married.F left.SG
‘*Every married woman left.’

c. ’ap̱ nesu’a lo ‘azḇa
no married.F no left.SG
‘no married woman left.’

(46) a. Tous les faibles ont été secourus.
all DEF.PL weak.PL have been rescued
‘All the weak ones have been rescued.’

b. *Chaque faible a été secouru.
every weak has been rescued
‘*Every weak one has been rescued.’

c. Aucun des faibles n’a été secouru.
none of-the weak.PL NEG-has been rescued
‘No weak one has been rescued’.

5. Spanish *pro*, Spanish *uno*

The existence of *Adj-pro* forms with a large range of interpretations (thus contrasting with English) is dependent on two factors. *Pro* must be licensed in the language; and

If we follow, however, the logic of the structures here, it emerges that in exactly these cases movement to D is not required, and $[_{D}\ e]$ may thus be bound. The fact that *pro* IS licit in bound cases without movement to D raises the possibility that the properties of bound *pro* and bound pronouns in general are distinct from those of definite *pro* and definite pronouns in general (and see, in this context, Kratzer 2006). Note that we predict that *Adj-pro* constructions cannot have a bound variable reading – they involve, by definition, a definite pronoun which must move to D, thereby binding $[_{D}\ e]$ itself and barring its binding by an operator or an antecedent external to the DP.

pro must be identifiable through gender and number distinctions on the article – if the article can express such distinctions – and/or through the modifying adjectives (Bernstein 1993, among others).

We are making the prediction that a language like Spanish, which licenses *pro* in both subject and object positions, and which has agreement features on both articles and modifying adjectives, will pattern with French/Hebrew in allowing *Adj-pro* with a variety of interpretations. As expected, Spanish does allow adjectives without an overt noun in numerous contexts, including some that seem fair candidates for *Adj-pro* (e.g., *importante* 'important', *rojo* 'red', *alto* 'tall', *mojado* 'wet', etc.) and others that appear to be Noms(A) (e.g., *viejo* 'old man/elderly', *ciego* 'blind man', *católico* 'catholic', etc.).

To show that the constructions are indeed distinct, we need to show that some, but not all of these 'bare' adjectives, are systematically barred in weak contexts. By assumption, those that are thus restricted are *Adj-pro* constructions, and those that are not restricted in this fashion are Noms(A). As it turns out, the distinction does exist, marking the forms in (47a) as *Adj-pro* constructions, and the forms in (47b) as Noms(A).[19] We note that in terms of their meaning, the Noms(A) in (47b) are, as they were in French/Hebrew, restricted and cannot range over all objects with the relevant restriction:

(47) a. *No encontró importantes en la reunión.
NEG met important.PL at the meeting

b. No encontró ciegos en la reunión.
NEG met blind.PL at the meeting
'He did not meet blind men at the meeting.'

As expected, the ungrammaticality of the *Adj-pro* forms in (47a) contrasts with their grammaticality in contexts that allow a strong interpretation, as for instance with the article *unos* in the object position:

(48) No encontró unos importantes en la reunión.
NEG met ones important at the meeting
'He did not meet (specific) important ones at the meeting.'

In view of the generalizations we reached on French and Hebrew, the fact that Spanish licenses *Adj-pro* forms is not surprising (see also Bosque 1989; Contreras 1989; Leonetti 1999; Cabredo Hofherr 2005; among others). As in French, *Adj-pro* in Spanish is licensed by both definite and indefinite articles (cf. (49)). The identification of *pro* through

19. Native speakers inform us that (47a) is possible when the context provides a (referential) discourse antecedent. As it is the case in English, Hebrew and French, *Adj-pro*s are licensed in elliptical contexts in Spanish, presumably through an antecedent associated with D (hence as a DP and not an NP) and see Footnote 6 for some more discussion.

the gender and number information both on the article and the adjective allows N-*pro* to receive a variety of interpretations analogous to French and Hebrew (human/non-human, count/mass, feminine/masculine, etc.):

(49) los mojados; la mojada; una mojada; etc.
DET.MPL wet.MPL DET.FSG wet.FSG a.FSG wet.FSG

There is, however, one feature of Spanish which distinguishes it from French, otherwise minimally different. For *Adj-pro* forms, we find that the singular indefinite masculine article *un* is impossible in Spanish. This contrasts clearly with Noms(A), where the article *un* is entirely licit, as illustrated by (50):

(50) a. *un importante (Adj-*pro*)
an important
b. un viejo (Nom(A))
an elder

Instead, *Adj-pro* forms must be constructed with *uno*, as in (51):

(51) uno importante; uno mojado; uno vacío; uno recto; uno lleno
one important one wet one empty one straight one full

The ungrammaticality of the article *un* in *Adj-pro* constructions, although strongly supporting the distinction we postulate here between Noms(A), as in (50b), and *Adj-pro* constructions as in (50a), is nevertheless quite puzzling, especially when we consider the fact that if *pro* is replaced by an overt noun the article *un* is obligatory whenever an adjective occurs (as well as in the context of unmodified nouns in general, see below):

(52) a. un hombre importante
a man important
b. *uno hombre importante
one man important

To answer this puzzle, we suggest that the masculine singular indefinite article *un* in Spanish is unable to license *pro* because it is underspecified for gender and possibly also number features. In the absence of sufficient information on the article, the content of *pro* cannot be recovered.[20] *Un* is rather akin to the third person inflection in Hebrew,

20. Spanish does allow bare plural Adj-*pros* in clearly elliptical contexts as in (i) (as pointed out to us by a reviewer; examples from Bosque 1989):

(i) a. Tengo que utilizar sacapuntas viejos o llegaron nuevos?
'Do I have to use old pencil-sharpeners, or did new ones arrive?'
b. Compré rojas porque blancas no quedaban.
'I bought red ones because there weren't any white ones left.'

which, as we have seen earlier, unlike 1st and 2nd inflection, is not specific and hence cannot license *pro*. Although unambiguous in both cases, it is not morphologically specified for person, a characteristic which has been argued to correlate with failure to license. This situation in Spanish contrasts with that of Hebrew, however, which never marks agreement on articles (and which, at any rate, lacks an indefinite article) and where, possibly in consequence, adjectival morphology is sufficient to license *pro*.

In contrast, the feminine indefinite article is identical with the feminine numeral form, and is overtly marked for gender. As a result, it can license *pro* (53a). Similarly, the plural definite articles are overtly marked for gender and number, and can license *pro* (53b):

(53) a. una importante; una mojada; una vacía;
a/one.F important a/one.F wet a/one.F empty

b. los/las importantes; los/las mojados(/as);
DET.MPL/FPL important.PL; DET.MPL/FPL wet.MPL/FPL
los/las vacíos(/as)
det.mpl/fpl empty.MPL/FPL

What, now, is the role of *uno,* and why does it occur exactly in the context of an (apparently) bare adjective? Recall that it is ungrammatical in the context of regular nouns which are modified by adjectives (as in (51b)). It is also ungrammatical in the context of clear nouns in general (as illustrated by (54) and in the case of clear Noms(A), as in (55)).[21] It is thus hard to argue that *uno* is simply a more fully specified version of the article *un*:

(54) *uno médico; *uno estudiante; *uno coche; etc.
one doctor one student one car

(55) *uno viejo; *uno ciego; etc.
one elder one blindman

We suggest, instead, that the properties of *uno* have a straightforward account if we assume that the proform modified by the adjective and heading the nominal construction in (51), is not a null N-*pro*, but rather, the overt proform *uno* itself, behaving very much like English *one* in *a tall one* or *a red one*. Importantly, and just like its counterpart English *one*, *uno* is not a *pro*, and thus does not need to be licensed. *Uno*-headed expressions

This is a language specific fact for which we have no explanation, and which requires studying conditions on ellipsis which are different (see fn. 6).

21. The phrases in (55) are, as expected, grammatical as *uno-Adj* constructions only, i.e., when *viejo* and *ciego* are not nominals but true adjectives, respectively 'old' and 'blind', in cases similar to (51) above.

are felicitous in weak contexts and with weak readings thereby contrasting with true *Adj-pro*. They can appear in existential sentences, as well as under the scope of negation, two contexts known to allow only weak expressions. The result is that unlike *Adj-pros*, *uno-Adj* forms (56a), (57a) do not contrast with Noms(A) (56b), (57b) in weak contexts:

(56) a. Hay uno importante en mi clase de español.
'There is an important one in my Spanish class.'

b. Hay un ciego en mi clase de español.
'There is a blind man in my Spanish class.'

(57) a. El hombre no habló con uno importante.
'The man did not talk to an important one.'

b. El hombre no habló con un ciego.
'The man did not talk to a blind man.'

Suppose, now we assume that *uno*, being a proform already marked for number, must move from its original position, N, to Num^0 to be licensed (through checking or range assignment). As a result, *uno* can never occur to the right of a modifying adjective (57). Thus an adjective like *importante*, for instance, can appear pre-nominally when modifying an overt noun (58), but not in the context of *uno*:

(58)	*importante uno;	*feliz uno;	*largo uno;	*estupendo uno
	an important one	a happy one	a long one	a wonderful one

(59) a.	un problema	de salud	importante	
	a problem	of health	important	
b.	un importante	problema	de	salud
	an important	problem	of	health

'an important health problem'

Support for the movement of *uno* comes from its failure to occur with the indefinite article, thereby blocking the insertion of the article *un*, by assumption base-generated in Num^0 (see Roy 2006, for discussion):

(60)	(*un)	uno	importante;	(*un)	uno	largo;	(*un)	uno	estupendo
	a	one	important	a	one	long	a	one	wonderful

Nor can *uno* occur with any other article or cardinal, as illustrated in (61):

(61)	*los	unos	importantes;	*pocos	unos	importantes;	*tres
	DET.PL	ones	important(s)	few	ones	important(s)	three
	unos	importantes					
	ones	important(s)					

As such, it contrasts with English pronominal *one*, which may occur both with indefinite and definite articles, and which, by assumption, does not move to Num^0:[22]

(62) a. a tall one; an important one; few important ones; many wonderful ones.
b. the tall one; the important one; that wonderful one; etc.

More importantly, the behavior of *uno-Adj* contrasts with that of the genuine *Adj-pro* cases in (63), (and see also (53) above), where both articles and cardinals are possible:

(63) los importantes; tres importantes
DET.PL important.PL; three important.PL

In (63) and (53), the highest functional head (presumably D) is filled by the relevant determiners (*los, las, una, tres*). We suggest that these are appropriate licensors for the null form *pro* (see discussion above). As noted, licensing, both in Spanish and in Hebrew, requires overt morphology, lacking in singular masculine forms in Spanish, hence the ungrammaticality of *un Adj-pro* constructions.[23] On the other hand *uno-Adj* constructions do not include a *pro* altogether. Rather, they contain an overt pronominal, *uno*, generated in N and moving to Num^0. The underspecified nature of the indefinite masculine singular article *un* is thus irrelevant in the licensing of *uno-Adj* constructions. The movement of *uno* to Num^0 not only makes the occurrence of such an article unnecessary, it also makes it impossible.[24]

Consider now the properties of constructions which include feminine and plural instantiations of *uno*: *una, unos,* and *unas*. In these cases, the presumed overt indefinite pronoun is homophonous with the indefinite article which *does* carry overt inflection. We excluded *Adj-pro* constructions in Spanish for singular masculine in the absence of

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22. While the difference between Spanish and English follows directly from our assumption that English *one* does not move, we have no explanation at the present time for this asymmetry, short of noting that overt movement in English is highly restricted both in verbal and nominal contexts.

23. But we do note that gender marking on third person verbs in Hebrew is specified, but not sufficient to license *pro* in the subject position. We leave this matter aside, pending a better understanding of the relations between feature specification and null pronominal licensing in general.

24. We make the prediction that *tres importantes* can only be strong, and must, thus, be excluded from weak contexts. Although such *Adj-pro*s are accepted in existential constructions (*Hay tres rojos sobre la mesa* 'there are three red ones on the table'), native speakers report that they only have a list reading (e.g., talking about pens, three red ones are sitting on the table, two blue ones on the floor, and a yellow one near the window). If this is correct, it confirms our claim that *Adj-pros* are always strong. Note, in this respect, that Spanish contrasts with French, for instance, which never allows *trois rouges* in weak contexts, even with a pair list reading. We leave a more detailed investigation of these cases to future research.

an appropriate article, but note now that such an exclusion does not extend to feminine and plural indefinite articles. As a result, we expect a parallel derivation for expressions which include an inflected article and an adjective. On one derivation, they will parallel that of singular masculine *uno*, as in (64). On that derivation, they may have a weak reading. On the other derivation, they will follow the analysis for *Adj-pro* in French, with the article licensing *pro*, and will be restricted to strong contexts, as in (65) (a prediction, note, that cannot be checked due to the existence of a 'weak' derivation):

(64) a. [uno [Adj [~~uno~~]]] (indefinite pronominal)
b. [una [Adj [~~una~~]]] (indefinite pronominal)
c. [unos [Adj [~~unos~~]]] (indefinite pronominal)
d. [unas [Adj [~~unas~~]]] (indefinite pronominal)

(65) a. *[un [Adj [*pro*]]]
b. [una [Adj [*pro*]]] (article licensing a definite *pro*)
c. [unos [Adj [*pro*]]] (article licensing a definite *pro*)
d. [unas [Adj [*pro*]]] (article licensing a definite *pro*)

To conclude, the identification of *pro* in Spanish is subject to the same principles as in French, Hebrew and English. Spanish licenses "bare adjectival" nominals with a large variety of interpretations because it has sufficient information on both the article and the adjective. All articles except *un* license *pro* successfully. The particular behavior of *un,* and the appearance of *un/uno* alternation in the case of bare adjectives, relates, we suggested, to the fact that it is underspecified for gender and number. It therefore follows that in Spanish, true *Adj-pro* can never be indefinite singular masculine. Quite independently, Spanish has an indefinite *overt* form, occurring in both genders, and as both singular and plural. Although, the surface appearance of that form coincides with that of *Adj-pro*, a closer investigation revealed them to be different constructions. As in English, French and Hebrew, the null pronoun found in *Adj-pro* forms in Spanish (e.g., in (65)) is a null definite *pro*, which must be licensed through an overt and sufficiently specific D. The other cases are *Adj*-proforms which do not involve a null proform, but rather, an indefinite overt pronoun which does not need a licensor; and as a result need not be strong either. As *Adj-pro* must occur in strong environments, it can never surface as a bare plural in Spanish (and see fn. 20 for some comments). When we combine these factors with the fact that the proform *uno* (in contrast with the numeral) may occur in weak contexts, it emerges that the contrast between *Adj-pro* and Nom(A) in Spanish can only be illustrated in indefinite, weak plural contexts, as in (47).

6. Conclusion

We have shown in this paper that nominal expressions which are homophonous with adjectives belong to two distinct classes. One class (our Nom(A)) consists of true

nouns that happen to be homophonous with adjectives, but whose meaning, when compared to that of the corresponding adjectives, is either considerably restricted or idiosyncratic. Across the languages that we examined, the set of Noms(A) is relatively small and restricted. The large and productive class of nominal expressions which are homophonous with adjectives, we suggest, truly are attribute adjectives which modify a pronominal null N (our *Adj-pro*). In contrast with Nom(A), whose distribution is identical to that of a regular noun, *Adj-pro* is restricted to strong contexts. We suggested that while the *pro* in *Adj-pro* is, like non-bound pronouns, definite, it nevertheless is subject to licensing constraints, which amount to its occurrence only being licit in the context of an overt D. The result is that it is barred in contexts which do not allow a strong reading. We further suggested that all definite pronouns may be N-pronouns, and that so-called D-pronouns are derived through the movement of a *pro* form (overt or covert) to D, and that it may very well turn out that across the board, indefinite pronouns are never covert.

Finally, as is usual, we attribute cross-linguistic differences between *Adj-pro* forms to the overt vs. covert nature of inflectional and functional material, leading to a different application of licensing conditions on null pronominals in various languages. Specifically, we note that the existence of overt articles, adjective agreement and verbal agreement in some languages or paradigms vs. its absence in others turns out to account for the distinct (but at times overlapping) distribution of *pro* in English, Hebrew, French and Spanish.

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Adjectives in Mandarin Chinese

The rehabilitation of a much ostracized category*

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The present paper examines the syntax and semantics of adjectives in Mandarin Chinese and argues that adjectives have to be recognized as a separate part of speech in Mandarin. I show that adnominal adjectives introduced by *de* should not be analysed as reduced relative clauses or small clauses, since adjectives that cannot be used predicatively can be used adnominally in conjunction with *de*. For adjectives in direct juxtaposition with the noun, evidence from N-subdeletion and multiple adjective ordering shows that the [A N] sequence has to be analysed as a noun phrase, not as a compound. Accordingly, both types of modification strucures, 'A *de* N' and 'A N' need to be taken into account by typological studies. Finally I provide evidence for the existence of two morphologically different classes of adjectives with distinct semantic and syntactic properties, i.e. 'simple' adjectives and 'derived' adjectives.

1. Introduction

During the last decades adjectives in Mandarin Chinese have been rather neglected by more theoretically oriented studies. This is partly due to the (erroneous) assumption that they are conflated with intransitive stative verbs (cf. e.g. McCawley 1992). Interest in the status of adjectives in Mandarin has been revived, however, by the growing number of typological studies of adjectival modification in the recent past. More precisely, adjectival modification has regained theoretical importance due to the claim made by Cinque (1994) and elaborated by e.g. Scott (2002a,b), Chao et al. (2001),

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*For critical remarks and comments on earlier versions of the present article, I would like to thank Guglielmo Cinque, Audrey Li, John Whitman, two anonymous reviewers as well as Ora Matushansky and Patricia Cabredo Hofherr. I am especially indebted to Lu Peng, Hsiung Huiju, Li Ming, Yuan Huahung and Yang Zhitang Drocourt for sharing their intuitions with me. Any errors or shortcomings are my responsibility.

Laenzlinger (2000) that the functional hierarchies in the clause proposed for adverbs (Cinque 1999 & Tenny 2000) might be observable in the DP as well. Before these and related claims can be examined for Chinese, however, it is necessary to first address the following basic issues.

1. Do adjectives constitute a part of speech distinct from intransitive stative verbs in Chinese?
2. If this is the case, do we observe different semantic types such as scalar vs. absolute adjectives, intersective vs. non-intersective adjectives? Do these semantic differences correlate with syntactic differences (as known from other languages)?
3. Does Chinese display different modification structures, as e.g. Romance and Germanic languages, which place adjectives in prenominal or postnominal position? What – if any – are the semantic properties associated with the different modification structures?

To answer these and related questions is precisely the purpose of this paper. We will provide extensive evidence for adjectives as a separate part of speech in Mandarin. In fact, we will go a step further and demonstrate that Chinese has as many as *two* morphologically different classes of adjectives with distinct semantic and syntactic properties: *simple adjectives* and *derived adjectives* (including e.g. reduplicated adjectives). Furthermore, we argue that typological studies have to take into account both types of modification structures available in Mandarin Chinese: that where the subordinator *de* intervenes between the adjective and the head noun, 'A *de* N', and the case of simple juxtaposition of the adjective and the noun 'A N'. To acknowledge adjectives as a distinct part of speech not only allows us to correct the typological picture we have of so-called "isolating" languages, but also challenges current proposals where all adnominal modifiers subordinated by *de* are either analyzed as relative clauses (Sproat & Shih 1988, 1991; Duanmu 1998; Simpson 2001) or as small clauses (Den Dikken & Singhapreecha 2004).

Since most of the data are inaccessible to the non-sinologist, we will give numerous examples and provide the reader with a detailed picture of the situation in Chinese and the possibility to judge for her/himself. At the same time, taking into account a more representative array of data than has been done in previous works is often sufficient to invalidate some of the current misconceptions concerning the syntax and semantics of adjectives in Chinese.

The paper is organized as follows. Section 2 provides ample evidence for adjectives as a part of speech distinct from intransitive stative verbs. In Section 3, the existence of two modification patterns is established: one where the subordinator *de* intervenes between the adjective and the head noun, 'A *de* N', and the case of simple juxtaposition of the adjective and the noun 'A N'. Section 4 once again takes up the issue of adjectives as a separate part of speech and argues that in fact two morpho-syntactically different classes of adjectives have to be postulated for Chinese. Section 5 concludes the article.

2. Adjectives as a separate part of speech

Many studies (McCawley 1992; Larson 1991; Tang Sze-Wing 1998; Lin 2004 *inter alia*) hold that adjectives are to be conflated with intransitive stative verbs in Chinese and accordingly analyse 'adjective *de* N' as involving a relative clause modifying the head noun. This widespread assumption is, however, clearly invalidated when a more representative array of data is taken into account:

– non-predicative adjectives such as *yuánlái* 'original', *gòngtóng* 'common' cannot be analysed as relative clauses when subordinated to the head noun by *de*
– adjectives are reduplicated according to a pattern different from that for verbs
– under certain conditions, an adjective can modify a noun without the subordinator *de*; by contrast, for relative clauses *de* is obligatory.

2.1 Non-predicative adjectives vs. predicative adjectives

The idea of conflating adjectives with stative verbs relies on the fact that adjectives such as *cōngmíng* 'intelligent' function as a predicate without the copula *shi* 'be':

(1) Zhāngsān zhēn cōngmíng[1]
Zhangsan really intelligent
'Zhangsan is really intelligent.'

When functioning as an adnominal modifier, the adjective is subordinated to the head noun by *de*:

(2) yī-ge cōngmíng de rén
1 -CL intelligent SUB person
'an intelligent person'

Since the same subordinator *de* also appears between a relative clause and the head noun (cf. (3)), it has been suggested that a prenominal adjective followed by *de* should be analyzed as a relative clause (see among others Sproat & Shih 1988, 1991; Duanmu 1998; Simpson 2001):

(3) [$_{DP}$ yī-ge [$_{IP}$ t$_i$ xǐhuān xiào] de rén$_i$
1-CL like laugh SUB person
'a person who likes laughing'

1. The following abbreviations are used in glossing examples

CL	classifier	PL	plural (e.g. 3PL = 3rd person plural)
PERF	perfective aspect	SG	singular
NEG	negation	SUB	subordinator.
PART	sentence-final particle		

According to this scenario, *yī-ge cōngmíng de rén* in (2) would represent a head noun modified by a relative clause and hence should be translated as 'a person who is intelligent' rather than as 'an intelligent person'. This is precisely the view adopted by Sproat & Shih (1988, 1991), Duanmu (1998), and Simpson (2001) for whom all sequences 'adjective *de*' are equated with relative clauses. Their analysis, however, does not bear further scrutiny.

Chinese has a large class of so-called *non-predicative* adjectives which cannot function as predicates on their own, but only as modifiers (cf. Lü & Rao 1981). When in a predicative function (cf. (4a), (5a)), the copula *shi* and the particle *de* are obligatory (Paris 1979: 61). Crucially, *shi…de* is excluded from the modification structure in the DP (cf. (4b), (5b)):[2]

(4) a. Zhèi-ge pánzi *(shì) fāng *(de)
this -CL plate be square DE
'This plate is square.'

b. Tā mǎi-le [$_{DP}$ yī-ge (*shì) fāng de$_{sub}$ pánzi]
3SG buy-PERF 1 -CL be square SUB plate
'He bought a square plate.'

(5) a. Zhèixiē wénjiàn *(shì) juémì *(de)
these document be top-secret DE
'These documents are top-secret.'

b. Tā diū-le [$_{DP}$ yīxiē (*shì) juémì de$_{sub}$ wénjiàn]
3SG lose-PERF some be top-secret SUB document
'He lost some top-secret documents.'

As can be seen from the data provided here, the class of non-predicative adjectives in Chinese includes both intersective adjectives ((4), (5)) as well as non-intersective adjectives ((6)–(7)); the latter – like their counterparts in Western languages – are completely excluded from the predicative function, irrespective of *shi…de* ((6a), (7a)).

(6) a. *Zhèi-ge yǔyán shì gòngtóng de
this -CL language be common DE
(*'This language is common.')

b. gòngtóng de$_{sub}$ yǔyán
common SUB language
'a common language'

2. Note that *de* in the *shi…de* construction with non-predicate adjectives is different from the subordinator *de* in the DP (cf. Paris 1979: 60ff). They are therefore glossed differently as DE and SUB, respectively. Furthermore, the subordinator *de* is indexed with SUB in order to facilitate parsing of the examples.

(7) a. *Zhèi-ge yìsi shì yuánlái de
this-CL meaning be original DE
(*'This meaning is original.')

b. yuánlái de_{sub} yìsi
original SUB meaning
'the original meaning'

Furthermore, predicative adjectives coincide with scalar, gradable adjectives, whereas non-predicative intersective adjectives coincide with absolute adjectives (cf. Paris 1979 for an extensive discussion). (For additional data, cf. Section 2.3 below.)

Given that non-predicative adjectives are unable to function as predicates, they clearly challenge an overall analysis of attributive adjectives as relative clauses, as proposed by Sproat & Shih (1988, 1991), Duanmu (1998), Simpson (2001) (the latter implementing Kayne 1994), Liu Danqing (2005), as well as analyses deriving every modifier from an underlying predicate (Den Dikken & Singhapreecha 2004).[3] In any case, as discussed in detail in Paul (2005, 2007), the wide range of non-predicative modifiers (DPs, NPs, PPs, adverbs) subordinated to the head noun by *de* presents a general problem for the derivation of all modifiers from underlying predicates. (Also cf. Tang C.-C. 2007 for a critique of Simpson's 2001 uniform analysis of modifiers as relative clauses.)

(8) [$_{DP}$ Měil / tāmen] de_{sub} pengyou
Mary/ 3PL SUB friend
'Mary's/their friend'

(9) [$_{NP}$ bōli] de_{sub} zhuōzi
glass SUB table
'a glass table'

(10) [$_{PP}$ duì wèntí] de_{sub} kànfǎ (Lü et al. 1980/2000: 157)
towards problem SUB opinion
'an opinion about the problem'

(11) [$_{adv}$ lìlái] de_{sub} xíguàn / [$_{adv}$ wànyī] de_{sub} jīhuì (Lü et al. 1980/2000: 157)
always SUB habit in.case SUB occasion
'an old habit/a rare occasion'

3. Based on the class of *non-intersective* non-predicative adjectives ('original', 'former' etc., (cf. (6), (7)), Aoun & Li (2003: 148) likewise conclude that not all prenominal adjectives can be derived from relative clauses. However, they do not discuss *intersective* non-predicative adjectives (cf. (4), (5)) and accordingly fail to see the correlation between presence vs. absence of *shì…de* and predicative vs. attributive function.

2.2 Verbal vs. adjectival reduplication

While both transitive and intransitive verbs are repeated as a whole (cf. (12a–b)), each syllable is iterated with adjectives (cf. (13)) i.e. for a disyllabic verb noted as 'AB', we obtain '$[_{V^0}$ AB] $[_{V^0}$ AB]', but '$[_{A^0}$ AABB]' for a disyllabic adjective:

(12) a. Ràng ta zhīdao zhīdao/*zhīzhīdaodao wǒ -de lìhài
let 3SG know know 1SG-SUB (dis)advantages
'Let him know my advantages and disadvantages.' (Meng et al. 1984: 918)

b. Nǐ chàng ge gē ràng dàjiā huānxǐ huānxǐ/*huānhuānxǐxǐ
2SG sing CL song let everybody enjoy enjoy
'Sing a song for everybody to enjoy.'

(13) a. gānjìng / gāngānjìngjìng /*gānjìng gānjìng de_{sub} yīfu
clean / clean / clean clean SUB clothes
'(thoroughly) clean clothes'

b. Zhèi-jiàn yīfu gāngānjìngjìngde /*gānjìng gānjìng
this-CL clothes clean / clean clean
'This piece of clothing is (thoroughly) clean.'

In the case of monosyllabic adjectives and verbs, no difference can be discerned on the segmental level between adjectival reduplication and repetition of the verb. On the suprasegmental level, however, these two phenomena can clearly be distinguished: while the second syllable in adjectival reduplication carries the first tone, irrespective of its original tone (cf. (14a–b), the repeated verb (cf. (15a–b)) is in the neutral tone (signaled by the absence of a tone mark) (cf. Dragunov 1952/1960: 175):

(14) a. xiǎo 'small' > $[_{A^0}$ xiǎoxiāo]
b. kuaì 'fast' > $[_{A^0}$ kuaìkuaī]

(15) a. kàn 'look' > $[_{V^0}$ kàn] $[_{V^0}$ kan]
b. zǒu 'walk' > $[_{V^0}$ zǒu] $[_{V^0}$ zou]

The formal difference between adjectival reduplication pattern and repetition of the verb is accompanied by an interpretational difference, indicating that two completely different processes are involved here. Whereas the repetition of the verb '$[_{V^0}$ AB] $[_{V^0}$ AB]' gives rise to the so-called "tentative aspect" (Chao 1968: 204), reduplication of adjectives '$[_{A^0}$ AABB]' is said to involve a higher degree of liveliness or intensity (Chao 1968: 209; Tang Ting-chi 1988; Zhu Dexi 1956). This shows clearly that adjectives and intransitive stative verbs (such as *huānxǐ* 'enjoy') cannot be conflated into a single class. (For further discussion of adjectival reduplication, cf. Section 4 below).[4]

4. Given that Francis and Matthews (2005) do not take into account the dichotomy scalar vs. absolute adjectives nor the dichotomy intersective vs. non-intersective adjectives, the conflation

2.3 *De*-less modification

Besides the modification structure with the subordinator *de*, 'A *de* N', there also exists the possibility of simply juxtaposing the adjective and the noun: 'A N', where 'A N' is a noun *phrase*, not a compound (as to be demonstrated in Section 3.3 below). The syntactic and semantic constraints on this *de*-less modification structure and the differences between the modification structure with and without *de* have been a longstanding issue in Chinese linguistics, as witnessed by the lively debate among Chinese linguists in the 1950s and 1960s (see Paris 1980 for a collection containing the translations of the most influential articles from that period).

The existence of the *de*-less modification structure is important because – in addition to the arguments provided above – it once again emphasizes the fact that not all adnominal modifiers can be analysed as relative clauses, the latter always requiring *de*. Furthermore, the acceptability of the *de*-less modification pattern again allows us to distinguish between (predicative) adjectives and stative verbs, because only the former, but not the latter, can modify a head noun without *de*. Last, but not least, the (im)possibility of *de*-less modification serves as one of the diagnostics to distinguish between the two different classes of adjectives to be postulated for Chinese (cf. Section 4 below).

A rich array of data is given below in order to illustrate the properties of the *de*-less modification structure and to correct some misconceptions prevalent in the literature.

First, the *de*-less modification structure is acceptable for mono- and disyllabic adjectives alike as well as for complex modifiers (cf. (19–20)); this invalidates Sproat & Shih's claim (1988: 466, 474; 1991: 566) that the *de*-less modification structure is acceptable only for monosyllabic "light" adjectives:[5]

(16) yī-jiàn zāng/ piàoliang/ gānjìng yīfu
1 -CL dirty/ pretty / clean dress
'a dirty/pretty/clean dress'

(17) yī-ge qíguài xiànxiàng
1 -CL strange phenomenon
'a strange phenomenon'

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they propose of adjectives with verbs in Cantonese must be considered with caution, because it might turn out to be incorrect. Cf. Lau (1999) for evidence in favour of adjectives as a part of speech distinct from verbs in Cantonese.

5. Apparently, this idea has been around for a long time, because it is explicitly corrected by e.g. Fan Jiyan (1958: 213) and Zhu Dexi (1956/80: 3). Fan Jiyan (1958: 213) even goes as far as providing a list giving the possible combinations of monosyllabic or polysyllabic head nouns with monosyllabic or polysyllabic adjectives in the *de*-less modification structure.

(18) pǔtōng shēnghuó
ordinary life
'an ordinary life'

(19) yī-bǎ [yìng sùliào] yǐzi[6] (Fu Jingqi 1987: 286, (55))
1 -CL hard plastic chair
'a chair of hard plastic'

(20) yī-ge [hēi qī] yīguì (Fan Jiyan 1958: 215)
1 -CL black lacquer wardrobe
'a black-lacquered wardrobe'

Second, predicative adjectives as well as non-predicative adjectives can appear in both types of modification structures, the one with and the one without the subordinator *de*. If the relative clause analysis of adnominal modifiers were correct, we would expect a completely different scenario: predicative adjectives would be predicted to exclusively occur in the modification structure with *de* (*de* being obligatory for relative clauses), whereas non-predicative adjectives would be predicted to be limited to the *de*-less modification structure and to be excluded from the modification structure with *de* (the latter being likened to a relative clause).

Non-predicative (absolute) adjectives with and without *de*:

(21) yī-ge fāng (de) pánzi (cf. (4) above)
1 -CL square SUB plate
'a square plate'

(22) tiānrán (de) zhēnzhū
natural SUB pearl
'natural pearls'

(23) juémì (de) wénjiàn (cf. (5) above)
top-secret SUB document
'top-secret documents'

Predicative adjectives with and without *de*:

(24) yī-ge pàng / lǎoshí / cōngmíng / (de) rén
1 -CL fat / honest / intelligent / SUB person
'an honest/intelligent/fat person'

(25) yángé (de) guīdìng
strict SUB rule
'strict rules'

6. The complex modifier in (19) and (20) is itself a *de*-less modification structure 'A N', viz. *yìng sùliào* 'hard plastic' and *hēi qī* 'black lacquer', respectively.

(26) yī-jiàn zāng/ piàoliang/ gānjìng (de) yīfu
1 -CL dirty/ pretty / clean SUB dress
'a dirty/pretty/clean dress'

(27) yī-tiào dà / hēi (de) gǒu
1 -CL big / black SUB dog
'a big/black dog'

Third, acceptability in the *de*-less modification structure is another criterion – besides the separate reduplication patterns for adjectives vs. verbs (cf. Section 2.2 above) – to distinguish between predicative adjectives on the one hand, and stative verbs, on the other. At first sight, these two classes seem to be difficult to tell apart, both e.g. being compatible with degree adverbs such as *hěn* 'very' in predicative function:

(28) Tā hěn cōngmíng / hěn dānyōu
3SG very intelligent / very worry
'He is very intelligent/worries a lot.'

However, in contrast to adjectives, stative verbs – like verbs in general – are excluded from the *de*-less modification structure and can only modify a head noun by virtue of being in a relative clause, which always requires *de* (cf. (29)):[7]

(29) dānyōu *(de_{sub}) rén
worry SUB person
'persons who worry'

7. As pointed out by an anonymous reviewer, this statement must be somewhat relativized insofar as VPs may modify a head noun without the subordinator *de*:

(i) [$_{VP}$ xià yǔ] tiān
fall rain day
'a rainy day'

(ii) #qiē cài bǎn
cut vegetable board
'a chopping board'

(iii) #dānyōu rénmìng
worry life
'a life of worries'

The absence of *de* seems to induce a semantic effect similar to that observed in the simple juxtaposition 'adjective noun' (cf. Section 3.1 immediately below) where a new subcategory is created: 'rainy day' rather than 'a day when it was raining', 'chopping board' rather than 'a board for chopping vegetables'.

A first small survey shows that in the majority of the cases 'VP N^0' the noun plays the role of an adjunct with respect to the VP, (cf. (i), (ii) above and (iv)–(vi) below), that the VP must

The difference between verbs and adjectives is particularly clear in the case of predicative adjectives that have an inchoative verbal counterpart, identifiable by its compatibility with the perfective aspect suffix *-le*; while the adjective can simply be juxtaposed with the head noun (cf. (24), (26) above), the corresponding verb requires the presence of *de* ((30), (31)):

(30) pàng -le *(de) rén
become.fat-PERF SUB person
'the person who has put on weight'

(31) zāng -le *(de) yīfu
become.dirty-PERF SUB dress
'the dress which has become dirty'

While so far we have concentrated on the aspects of the *de*-less modification structure that allow us to distinguish between adjectives and verbs, we will now turn

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be a bare VP (cf. (viii)–(ix)), and that acceptability judgements may vary considerably: only (i), (iv), and (v) were unanimously accepted by all our informants ('#' indicates diverging acceptability judgements):

(iv) tíng chē dìdiǎn
stop car place
'parking lot'

(v) bào míng rìqí
report name date
'registration deadline'

(vi) #kāi huì shíjiān
hold meeting time
'the time of the meeting'

(vii) #bàokǎo xuéshēng
register.for.exam student
'students registering for the exam'

(viii) kěyǐ bào míng *(de) rìqí
can report name SUB date
'the date until one can register'

(ix) yǐjīng xúnluó *(de) dìqū
already patrol SUB area
'already patrolled areas'

More research is needed in order to determine whether these *de*-less structures are compounds or phrases. For first attempts at summarizing some of the relevant data, cf. Lü et al. (1980/2000: 158), Liu Danqing (2005: 8), Shi Dingxu (2005).

to its semantic properties and compare it with the modification structure where *de* is present.

3. The typology of adjectival modification

3.1 *De*-less modification vs. modification with *de*

The absence or presence of *de* is associated with an interpretational difference. To make a rather complicated story short (cf. Paul (2005) for a detailed discussion), with the *de*-less modification structure, a new subcategory is established, which must present a natural, plausible class in the sense of Bolinger (1967) (cf. Section 3.2 below). The modifier serves to single out the relevant subset of objects denoted by the NP, i.e. the modifier is presented as a defining property of the *resulting* new subcategory: *cōngmíng háizi* 'intelligent children', *fāng pánzi* 'square plate'.

This explains why modifiers referring to an intrinsic property of the noun are excluded from the *de*-less modification structure: it is impossible to establish a new subcategory by using an intrinsic property of the category concerned, this intrinsic property holding for the hyperonym and for any of its subcategories alike:

(32) a. *tián fēngmì
sweet honey

b. *gāo mótiānlóu
high skyscraper

When it does not indicate an intrinsic property of the head noun, the same adjective can be perfectly acceptable in the *de*-less modification structure:

(33) a. Wǒ zuì xǐhuan tián mántou bù tài xǐhuān xián-de$_{sub}$
1PL most like sweet steamed.bun NEG too like salty-SUB
'I prefer sweet buns, I don't really like salty ones.'

b. gāo jiànzhùwù / shuǐpíng
high building / standard
'a high building/standard'

No such constraint holds for the modification structure with *de* where adjectives are acceptable regardless of whether they denote an intrinsic property of the head noun or not:

(34) a. tài tián de fēngmì / mántou
too sweet SUB honey / steamed.bun
'too sweet honey/buns'

b. zuì gāo de mótiānlóu / jiànzhùwù
most high SUB skyscraper/ building
'the highest skyscraper/building'

The interpretational properties of the *de*-less modification structure in Chinese thus differ from the semantics associated with prenominal adjectives in Romance languages "where the property of the adjective is asserted to be part of the defining features of the object in question. […] For instance, in *tes lisses cheveux* ['your sleek hair'; WP], the hair is not merely described as sleek, it is defined as sleek, as if it could not be otherwise." (Bouchard 1998: 145). Accordingly, adjectives referring to an inherent property typically occur in the prenominal position: French *la blanche neige* 'the white snow' vs. *la voiture blanche* 'the white car'; Italian *dolce miele* 'sweet honey' vs. *vino dolce* 'sweet wine' (cf. Klein-Andreu 1983).

The interpretation of the sequence 'adjective noun' is thus more than a simple intersective one. For example, *hēi tóujīn* 'black scarf' is not meant to describe a scarf that happens to be black, but rather presents *hēi* 'black' as the defining property of the resulting subcategory of scarves. In *hēi de tóujīn*, however, the interpretation is purely intersective and *hēi* 'black' suggests a contrast with other modifiers as for example *bái* 'white' in *bái de tóujīn* 'a white scarf'. This difference is admittedly a very subtle one and accordingly, most contexts allow both types of modification structures (cf. (35)). But as Fu Jingqi (1987) has shown, there also exist a few diagnostic contexts where only the *de*-less modification structure is allowed, as for example the identification context in (36):

(35) Tā bǎ hēi (de) tóujīn sòng rén le
3SG BA black SUB scarf give people PART
'He gave black scarves to people (as a present).' (Fu Jingqi 1987: 302)

(36) Zhè shì hēi (*de) tóujīn
This be black SUB scarf
'This is a black scarf.' (Fu Jingqi 1987: 302)

The examples by Tang Ting-chi (1979) and Zhu Dexi (1984) illustrate the same contrast (where the presence of *de* in e.g. (37b) implies the contrast with a stupid person, who would be expected to act in a muddle-headed way):

(37) a. Nǐ shì ge cōngmíng rén, wǒ bù bī duō jiěshì
2SG be CL intelligent person 1SG NEG must much explain
'You are somebody intelligent, I don't need to explain a lot.'
(Tang T.-C. 1979: 147)

b. Yī-ge cōngmíng de$_{sub}$ rén bù huì zuò zhèyàng
1 -CL intelligent SUB person NEG will do such
hútu de shìqíng
muddle-headed SUB matter
'An intelligent person would not do such a muddle-headed thing.'

(38) a. Xuéxiào yǒu yángé guīdìng
school have strict rule
'The school has strict regulations.' (Zhu Dexi 1984: 11, 15, 16)

b. Xuéxiào yǒu jǐ -xiàng yángé de_{sub} guīdìng
school have several-CL strict SUB rule
'The school has several strict regulations.'

In the modification structure with *de*, a property is encoded as an accessory one, in the sense that this property is presented as not instrumental in establishing a new subcategory of N. It is important to note that this is not to imply that a property *presented* as accessory cannot be stable through time (in e.g. (35), *hēi-de tóujīn*, the scarf does not change its black color and in (38b) the regulations remain strict). This point is especially clear in the case of modifiers referring to material, which in Chinese are nouns and which – like adjectives – may appear in the *de*-less modification structure:

(39) Zhāngsān yīgerén yī-tiān kěyǐ zuò sān-zhāng mùtóu (*de) zhuōzi
Zhangsan alone 1 -day can make 3 -CL wood -SUB table
'Zhangsan on his own can make three wooden tables a day.'
(Fu Jingqi 1987: 292)

(40) Tā bǎ mùtóu (de) zhuōzi sòng rén le
3SG BA wood SUB table give people PART
'He gave wooden tables to people.' (Fu Jingqi 1987: 302)

It would not make sense to state that to be made of wood is a transient property of a table. To state that in the modification structure with *de*, a property is encoded as an accessory one is just meant to capture the fact that this property is not chosen by the speaker as one singling out a subcategory. Accordingly, individual-level as well as stage-level predicates are acceptable in both modification structures, with and without *de* (cf. (16)–(27)); it is the absence or presence of *de* which determines the interpretation of a given property as an accessory or rather a defining one. Also note that the *de*-less modification structure can refer to a token of the new subcategory (cf. (41)–(42)) and hence cannot be claimed to exclusively refer to kinds ((43)–(44)) (also cf. the discussion in Section 3.4 below):

(41) yī-jiàn zāng/ piàoliang/ gānjìng yīfu (= (16) above)
1 -CL dirty/ pretty / clean dress
'a dirty/pretty/clean dress'

(42) yī-ge qíguài xiànxiàng (= (17) above)
1 -CL strange phenomenon
'a strange phenomenon'

(43) juémì (de) wénjiàn (cf. (5) above)
top-secret SUB document
'top-secret documents'

(44) yángé (de) guīdìng
strict SUB rule
'strict rules'

To summarize, unlike verbs (of any class), adjectives and nouns can function as modifiers in the *de*-less modification structure. Furthermore, adjectives are different from nouns in that they do not appear in the copulative structure.

3.2 Constraints governing the *de*-less modification structure

Clearly, we do not want to imply that any property can be presented as a defining characteristic via *de*-less modification, because the semantic properties of the head noun likewise play a role, as observed by Zhu Dexi (1956/80: 9–10) and many others after him:

(45) a. cōngmíng rén / háizi
intelligent person/ child

b. *cōngmíng dòngwù
intelligent animal

(46) a. zāng yīfu
dirty clothing

b. *zāng táng
dirty candy

(47) a. bái zhǐ / tóufa
white paper / hair

b. *bái shǒu
white hand

(48) a. guì dōngxī
expensive thing

b. *guì dàngāo
expensive cake

But for most dimensions ranging from e.g. material, color, shape to size etc. there exists a choice as to whether they can be encoded as defining or rather accessory properties. Recall that the *de*-less modification structure gives rise to the interpretation of the 'A/N N' sequence as (a designation for) a newly created subcategory, in other words, the 'A/N N' sequence has to result in a natural, plausible classification. In our opinion, it is this constraint which explains why *de*-less modification is not always possible.

This state of affairs is reminiscent of the restrictions governing the distribution in prenominal vs. postnominal position for adjectives in English investigated by Bolinger (1967). Provided that both positions are potentially available for a given adjective, the adjective is interpreted as a characteristic property in the prenominal position, and as an occasional, temporary property in the postnominal position:

(49) a. the only navigable river
b. the only river navigable

(50) a. Who were the guilty people?
b. Who were the people guilty? (Bolinger 1967: 4)

As Bolinger (1967: 4) states "[...] *the only river navigable* is unambiguously occasion, *the only navigable river* unambiguously characteristic. Similarly with *Who were the guilty people?*, which characterizes and classifies, vs. *Who were the people guilty?*, which relates the guilt to an occasion."

Bolinger (1967) also comments extensively on the fact that the acceptability of an adjectival phrase in the prenominal position is difficult to predict, because it largely depends on pragmatic factors i.e. on whether the resulting NP is conceived of as a (culturally) relevant characterization. Discussing the reason why unlike *ill-behaved child* and *home-loving man*, **mistake-erasing secretary* and **husband-waking wife* are unacceptable, he says: "These must wait the day when we have some interest in characterizing secretaries as mistake-erasing and wives as husband-waking." (Bolinger 1967: 7). Accordingly, there exist numerous "irregularities": e.g. *your absent friend* is acceptable, while **your present friend* is not; the same holds for *deposited money* vs. **withdrawn money* (ibid., p. 9, 11). Conversely, it is not excluded that a former exclusively temporary modifier becomes acceptable in the prenominal position, "if the situation is such that nouns are distinguished by it" (ibid., p. 11): *the then president* vs. **the now president*, or *a nearby building* vs. **a nearby bus*.[8]

The same unpredictability as to what counts as a natural, plausible classification stated for English by Bolinger equally holds for Chinese and explains the "gaps" observed for *de*-less modification: *bái tóufa* 'white hair', but not **bái shǒu* 'white hand',

8. Taking up Ziff's (1960) concept of "natural kind" as further developed by Chierchia (1998), Bouchard (2005) equally concludes to a pragmatic constraint determining the well-formedness of adjective-noun combinations. He demonstrates how allegedly devious adjective orderings as the one illustrated in (ii) (where the adjective indicating the 'origin' is farther away from the noun than the colour adjective) in fact correspond to a specific context. In the example at hand e.g. different techniques of obtaining the colour blue in pottery are discussed and consequently *blue vases* constitute a "natural kind", which is modified by *Chinese* (ii):

(i) blue Chinese vases
(ii) Chinese blue vases

cōngmíng rén/háizi 'intelligent person/child,' but not **cōngmíng dòngwù* 'intelligent animal', *pàng rén* 'fat person', but not **shòu rén* 'skinny person', etc.[9]

3.3 The phrasal status of the *de*-less modification structure

The requirement to obtain a natural, plausible classification and the resulting impossibility of predicting the acceptability for a given *de*-less modification structure, as well as the special semantics associated with the *de*-less modification structures have often been misinterpreted as arguments for compound status i.e, for 'A N' being a word, N^0, rather than a noun phrase (cf. among others Sproat & Shih 1988, 1991; Duanmu 1998; Aoun & Li 2003: 149). It is true that Chinese displays a large number of 'A-N' and 'N-N' compounds such as *xiǎo-fèi* 'small-cost' = 'tip', *dà-yī* 'big-coat' = 'overcoat', *hóng-huā* 'red-flower' = 'safflower' (plant used in traditional Chinese medicine), *chá-huā* 'tea-flower' = 'camelia', *lóng-tóu* 'dragon-head' = 'tap', *huǒ-chē* 'fire-vehicle' = 'train' etc. However, there are several tests to show that *de*-less modification structures possess clearly different properties from compounds and must be analyzed as phrases.

First, it is well-known that the internal structure of compounds, i.e. of words, is inaccessible to syntactic rules (*Lexical Integrity Hypthesis* (LIH)).[10] This is illustrated

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9. The unpredictability of what counts as a natural, plausible classification and hence, the unpredictability of whether a given *de*-less modification structure will be judged acceptable or not, probably explains the comments by two anonymous reviewers that they do not always accept the examples of *de*-less modification structures cited in the literature or given in the text. The following observation made by Monique Hoa (p.c.) sheds some light on the role that context may play here as a means of establishing a new subcategory whose relevance might not be immediately accessible to other speakers (thereby confirming Bolinger's (1967) and Bouchard's (2005) views). Commenting on the unacceptability of (45b) above, **cōngmíng dòngwù* 'intelligent animals', she notes that this sequence might become acceptable after the difference between intelligent animals (*cōngmíng de dòngwù*) and non-intelligent animals (*bù cōngmíng de dòngwù*) has been introduced in the preceding discourse; to continue with *cōngmíng dòngwù* as a new subcategory relevant in the given situation then becomes possible.

10. As shown by Huang (1984: 60ff), Chinese (cf. (i), (ii)) – unlike German (cf. (iii)) – does not allow subparts of a word to be conjoined:

(i) $[_{N^0}$ huǒ-chē] gēn $[_{N^0}$ qì-chē] (= Huang 1984: 60 (13a–b))
fire-vehicle and gas-vehicle
'train(s) and car(s)'

(ii) *[huǒ gēn qì] chē
fire and gas vehicle

(iii) Filz- und Stroh-hüte
felt and straw-hats
'felt hats and straw hats'

in (51)–(54) where the head noun inside the 'A N' compound (e.g. *chá* 'tea' in (51)) is not visible for the rule operating on the phrasal level and allowing an empty head noun in the subsequent NP:

(51) a. *Wǒ xǐhuān [$_{N^0}$ lǜ -chá], [$_{NP}$ hóng de$_{sub}$ Ø] yě kěyǐ
1SG like green-tea red SUB also possible

b. Wǒ xǐhuān [$_{N^0}$ lǜ -chá], [$_{N^0}$ hóng-chá] yě kěyǐ
1SG like green-tea red -tea also possible
'I like green tea, but black tea is also ok.'

(52) a. *Wǒ xǐhuān chī [$_{N^0}$ xiǎo - báicài], yě xǐhuān [$_{NP}$ dà de$_{sub}$ Ø]
1SG like eat small-Chin.cabbage also like big SUB

b. Wǒ xǐhuān chī [$_{N^0}$ xiǎo -báicài], yě xǐhuān [$_{N^0}$ dà -báicài]
1SG like eat small-Chin.cabbage also like big-Chin.cab.
'I like to eat pakchoi [= a variety of Chinese cabbage],
and I also like to eat Chinese cabbage.'

(53) a. *Wǒ yǐjīng mǎi-le [$_{N^0}$ xiǎo-cōng], hái yào mǎi [$_{NP}$ dà -de$_{sub}$ Ø]
1SG already buy-PERF small-onion still want buy big-SUB

b. Wǒ yǐjīng mǎi-le [$_{N^0}$ xiǎo-cōng], hái yào mǎi [$_{N^0}$ dà- cōng]
1SG already buy-PERF small-onion still want buy big-onion
'I already bought shallots, I still want to buy Chinese onions.'

(54) *Amēi bù xiǎng chī [$_{N^0}$ hóng-huā], [$_{NP}$ huáng de$_{sub}$ Ø] hái kěyǐ
Amei NEG want eat red -flower yellow SUB still acceptable
('Amei doesn't want to take safflower [as medicine], yellow ones are still ok.')

Importantly, the LIH holds regardless of whether the meaning of the compound is (relatively) compositional (cf. (51)) or completely opaque (cf. (54)); it is therefore not feasible to reduce the effects of the LIH observed above to the semantic opacity of the compounds at hand.

Huang (1984: 61) equally observes that subparts of a word are not visible to interpretation rules; accordingly, (iv) is *not* rejected as contradictory:

(iv) yī-kuài lǜsè -de [$_{N^0}$ hēi -bǎn]
1 -CL green-SUB black-board
'a green blackboard'

Lu Zhiwei (1975: 32) makes the same observation; he states that the acceptability of (v) forces us to conclude that *xiǎo-hái* 'small-child' = 'child' is a word, N^0. Also note that *-hái-* 'child' is a bound morpheme.

(v) dà [$_{N^0}$ xiǎo -hái]
big small-child
'a big child'

In noun phrases, however, the head noun is visible to phrase-level rules and accordingly, an identity relation can be construed with the head noun in a subsequent NP, thus licensing an empty head in the latter. Note that *de* is obligatory in a modified NP lacking an overt head (cf. Li 2007):[11]

(55) Wǒ juéde [$_{NP}$ huáng chènshān] bǐ [$_{NP}$ hóng -de$_{sub}$ Ø] hǎokàn
1SG think yellow shirt compared:to red -SUB pretty
'I think that yellow shirts are prettier than red ones.'

(56) Wǒ bù xǐhuān [$_{NP}$ yuán pánzi], [$_{NP}$ fāng -de$_{sub}$ Ø] hái kěyǐ
1SG NEG like round plate square-SUB still acceptable
'I don't like round plates, square ones are still ok.'

(57) Bù mǎi [$_{NP}$ dà pángxiè], mǎi [$_{NP}$ xiǎo -de$_{sub}$ Ø]
NEG buy big crab buy small-SUB
'Don't buy a big crab, buy a small one.'

Examples (55)–(57) are thus on a par with (60): the subordinator *de* being optional in the case of pronouns as modifiers of kinship terms (cf. (58) vs. (59)), there is no *de* in the first NP; in the second NP, by contrast, *de* is obligatory due to the empty head.

(58) Tā / wǒ (de) gēgē
3SG/ 1 SG SUB younger.brother
'his/my younger brother'

(59) Zhāngsān *(de) gēgē
Zhangsan SUB younger.brother
'Zhangsan's younger brother'

(60) Tā gēgē bǐ [wǒ *(de) Ø] gāo
3SG younger.brother compared.to 1SG SUB tall
'His younger brother is taller than mine.'

The (un-)acceptability of an empty head noun allows us to distinguish between the 'A N' sequences in (51)–(54), on the one hand, and those in (55)–(57), on the other: *lǜ-chá* 'green tea', *xiǎo báicài* 'a variety of Chinese cabbage', *xiǎo-cōng* 'shallots', *hóng-huā* 'safflower' are shown to be compounds, whereas *huáng chènshān* 'yellow shirt(s)', *yuán pánzi* 'round plate(s)', *dà pángxiè* 'big crab(s)' are clearly phrases.

Another difference between 'A-N' compounds and 'A N' phrases is provided by the fact that 'A-N' compounds are not subject to the constraint observed for *de*-less modification structures, viz. to result in a natural, plausible classification. Thus,

11. The exact syntactic status of *de* is still under debate, cf. Aoun & Li (2003: 250, fn. 12), Tang C.-C. Jane (2007), Paul (2005). For new proposals, cf. Li (2007), Paul (2007).

compounds with three modifiers are well attested and do not result in divergence of judgements (cf. (61)–(63)).

(61) [$_{N^0}$ yōu -liáng -zhōng -chéngjī] (Xu & Liu 1999: 99)
excellent-good-average-result
'excellent, good and average results'

(62) [$_{N^0}$ dà -zhōng -xiǎo -xué]
big-middle-small-school
'educational institutions (i.e. primary school, middle school and university)'

(63) [$_{N^0}$ guān-yà -jì -jūn]
best -second-third-rank
'the first, second and third rank'

By contrast, *de*-less modification structures with more than two modifiers are very rare and are not uniformly judged acceptable. Whereas according to Xu & Liu (1999), (64) is well-formed, several native speakers rejected (64) as soon as the third modifier *hēi* 'black' was added. This is due to the fact that a natural, plausible classification is the more difficult to obtain the more modifiers are present:

(64) [$_{NP}$ xiǎo shòu (??hēi) gēbo]
small skinny black arm
'a small skinny black arm'

Note that in the phrasal *de*-less modification structure the modifiers are interpreted as stacked.

Finally, adjective ordering restrictions (cf. Sproat & Shih 1988, 1991) may also serve as a diagnostic to distinguish between 'A-N' compounds such as [$_{N^0}$ *dà-guàr*] 'unlined long gown', on the one hand, and the phrasal *de*-less 'A N' modification structures such as [$_{NP}$ *dà pánzi*] 'big plate', on the other. Feng Shengli (2001) observes that when a modifier such as e.g. *bái* 'white' is added, different ordering patterns obtain:

(65) a. [$_{NP}$ dà bái pánzi]
big white plate
'a big white plate'

b. *bái dà pánzi
white big plate

(66) a. bái [$_{N^0}$ dà- guàr]
white big-gown
'a white unlined long gown'

b. *dà- bái guàr
big white gown

Given that the ordering restrictions for modifiers apply word-externally and that a modifier relating to color must be nearer to the head noun than a modifier relating to size, he concludes that *dà-guàr* 'unlined long gown' is a compound. Its internal structure is invisible to the ordering restrictions, hence the acceptability of (66a); (66b), on the other hand, is ungrammatical due to a violation of the *Lexical Integrity Hypothesis*. The NP *dà bái pánzi* 'big white plate' in (65a), however, obeys the ordering restrictions 'size > color' applying in syntax and therefore must be distinguished from compounds like *dà-guàr*. His observation thus confirms the contrast established between A-N compounds, on the one hand, and phrasal *de*-less 'A N' modification structures, on the other.

3.4 Intermediate summary

In the preceding sections, we have argued that the *de*-less modification structure is a phrase, not a compound (*contra* among others Sproat & Shih 1988, 1991, Duanmu 1998, Aoun & Li 2003: 149). This result is important insofar as it leads to the conclusion that both types of modification, with and without *de*, have to be taken into account for typological studies of adjectival modification, contra Sproat & Shih's (1988, 1991) claim that only the *de*-less modification structures are relevant.[12]

The constraint governing the acceptability of a *de*-less modification structure and giving rise to unpredictable "gaps" – an issue having preoccupied Chinese linguists since the 1950's – has turned out to be of a semantico-pragmatic nature similar to the constraint observed for English by Bolinger: a *de*-less modification structure must result in a natural, (culturally) plausible classification. Since the *de*-less modification structure establishes a new subcategory (with the modifier presented as its defining property), it is evident that intrinsic properties are excluded here, because they hold both for the hyperonym and any of its subcategories. In this respect, Chinese *de*-less modification structures clearly differ from structures with prenominal modifiers in Romance languages.

12. As discussed in detail in Paul (2005), Sproat & Shih (1988: 474, 477) apparently do not see any contradiction between assigning compound i.e. word status to *de*-less modification structures and their claim that ordering restrictions only apply to *de*-less modification structures. If Sproat & Shih were right and the *de*-less 'A (A) N' sequences were really words, i.e. N^0, the impossibility of inverting the order of the adjectives would simply be due to the fact that word-internal structure is inaccessible to phrase level rules, and accordingly would not reveal anything about the (non-) existence of ordering restrictions in Chinese. For evidence in favour of the view that adjective ordering restrictions operate above the word level (a view contested by an anonymous reviewer), cf. inter alia Scott (2002a,b), Laenzlinger (2000), Cinque (2005) and references therein.

Furthermore, the fact that predicative adjectives as well as non-predicative adjectives can appear in both types of modification structures challenges those proposals that derive all modifiers from underlying predicates. For if this approach were correct, we would expect predicative adjectives to exclusively occur in the modification structure with *de* (*de* being obligatory for relative clauses), whereas non-predicative adjectives would be predicted not to function as modifiers at all, a prediction not borne out by the Chinese data.

As we have already pointed out, there exists no correlation between one type of modification structure and a particular type of predicate. On the contrary, individual-level as well as stage-level predicates (e.g. *cōngmíng* 'intelligent', *gānjìng* 'clean') are acceptable in both types of modification structures with and without *de*. This situation in Chinese is problematic for Cinque (1994, 2005) who – based on Romance languages – proposes a correlation between defining, non-restrictive, individual-level predicates and designated specifier positions (for prenominal adjectives in Romance), on the one hand, and between restrictive, stage-level predicates and relative clause source (for postnominal adjectives in Romance), on the other.

If the correlation obtained by Cinque equally held for Chinese, we would e.g. not expect stage-level predicates in the *de*-less modification structure (cf. (67)), where the modifier encodes a defining property of the resulting subcategory:

(67) yī-jiàn zāng/ piàoliang/ gānjìng yīfu (= (20))
1 -CL dirty/pretty / clean dress
'a dirty/pretty/clean dress'

Note in this context that the possible interpretation of the *de*-less modification structure as referring to an individual token does not hinge on the presence of the classifier phrase, as witnessed by the following sentence:

(68) Ba zāng/ gānjìng yīfu fàng zài zhèr
BA dirty/ clean dress put at here
'Put the dirty/clean dress here.'

Non-intersective adjectives such as *yǐqián* 'former', *jiānglái* 'future' etc. likewise do not behave as expected, because they always require the presence of *de*:

(69) a. běnlái *(de) yìsi
original SUB meaning
'the original meaning'

b. yǐqián /jiānglái *(de) xiáozhǎng
former/future SUB school.president
'the former/future school president'

c. mùqián *(de) qíngkuàng
present SUB situation
'the present situation'

According to Cinque (2005: 31) attributive-only adjectives are functional. Given that for Cinque, the modifiers in the *de*-less modification structure occupy dedicated functional projections, non-intersective non-predicative adjectives such as *běnlái* 'original' etc. should therefore be acceptable in the modification structure without *de*. This is, however, not borne out by the Chinese data above, where in fact the exact opposite of Cinque's claim is observed.

4. Two classes of adjectives

Having established adjectives as a distinct part of speech in Chinese allows us to take a fresh look at reduplicated adjectives (e.g. *gāngānjìngjìng* 'really clean') and to acknowledge them as a second class of adjectives distinct from simple adjectives (e.g. *gānjìng* 'clean'). While adjectival reduplication has been described in great detail in the literature in Chinese, these descriptions have mainly concentrated on simply listing the properties of simple vs. reduplicated adjectives.[13] Accordingly, the semantic and syntactic differences observed have not been interpreted as what they really are, i.e. as arguments in favour of reduplication of adjectives as a genuine morphological process resulting in a *new* class of derivatives. Instead, Zhu Dexi (1956/80: 6) in his still influential article on adjectives explicitly subsumes – under one and the same grammatical category – the so-called "base forms", instantiated by simple adjectives such as *gānjìng* 'clean', and the so-called "complex forms", instantiated by e.g. reduplicated adjectives such as *gāngānjìngjìng* 'really clean'. To postulate the existence of two morphologically separate classes of adjectives in Chinese is therefore not as uncontroversial as an anonymous reviewer claims.

Furthermore, none of the typologically oriented studies (cf. a.o. Tang Sze-Wing 1998; Lin 2004; Scott 2002b) ever takes reduplicated adjectives into account, which does not prevent Tang (1998) and Lin (2004) to make the farreaching – and for that matter wrong – claim that adjectives and stative verbs are to be conflated into one class in Chinese. Finally, the recent monograph on morphology in Chinese, Packard (2000), does not examine reduplication of adjectives either, but only mentions it in passing (p. 249).

As we will demonstrate in the remainder of the article, not only are adjectives a separate part of speech from (stative) verbs, but within the category of adjectives, simple adjectives and reduplicated adjectives belong to two distinct morphological classes, each of which is associated with a predictable set of semantic and syntactic properties.

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13. There is not much literature on adjectival reduplication in Mandarin Chinese accessible to non-sinologists: Chao (1968: 205–10), Karl (1993), Tang T.-C. (1997). Li & Thompson's (1981: 32–34) section on reduplication cannot be recommended, because it is for a large part factually incorrect. The discussion of reduplication and related issues in what follows is based on Paul (2004, 2006).

4.1 Reduplication as a morphological process

As to be expected from a morphological process, adjectival reduplication is sensitive to word-internal structure.[14] Thus, while the general reduplication pattern for a bisyllabic adjective noted as 'AB' is [$_{A^0}$ AABB] (cf. (70)), it is [$_{A^0}$ ABAB] for 'modifier-adjectival head' compounds such as *xuě-bái* 'snow-white' = 'as white as snow' (cf. (71)):[15]

(70) AB => AABB:

a. piàoliang 'pretty' => piàopiàoliangliang
b. gāoxìng 'happy' => gāogāoxìngxìng
c. qīngchu 'clear' => qīngqīngchuchu

(71) AB => ABAB:

a. xuě-bái 'snow-white' => xuě-bái-xuě-bái 'snow-white'; *xuě-xuě-bái-bái
b. bǐ-zhí 'brush-straight' = 'perfectly straight' => bǐ-zhí-bǐ-zhí; *bǐ-bǐ-zhí-zhí
c. gǔn-rè 'roll-hot' = 'scalding hot' => gǔn-rè-gǔn-rè; *gǔn-gǔn-rè-rè
d. tōng-hóng 'all-red' = 'very red, scarlet' => tōng-hóng-tōng-hóng; *tōng-tōng-hóng-hóng

Furthermore, reduplication is blocked in the cases of monomorphemic disyllabic adjectives (cf. Tang Ting-chi 1997: 320). This holds both for 'native' adjectives (cf. (72)) and for phonetic borrowings from other languages (cf. (73)):

(72) a. yǎotiǎo 'graceful, gentle' => *yǎoyǎotiǎotiǎo[16]
b. línglóng 'exquisite' => *línglínglónglóng
c. tángtū 'brusque' => *tángtángtūtū
d. miáotiao 'slender' => *miáomiáotiaotiao

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14. Reduplicated adjectives are different from onomatopoeia, where the original form is repeated as a whole, in general two to three times (cf. Chao 1968: 210):

(i) pūtōng, pūtōng (pūtōng ....) 'splash, splash'
(ii) dīngdāng, dīngdāng (dīngdāng....) 'ding-dong'
(iii) dā dā (dā) 'hammering, pounding sound' (e.g. of a typewriter, machine guns etc.)

15. The reduplication pattern for 'modifier-adjectival head' compounds deriving an adjective of the form [$_{A^0}$ ABAB] is not to be confounded with the repetition of a disyllabic verb as a whole in syntax: [$_{V^0}$ AB] [$_{V^0}$ AB] (cf. Section 2.2 above). In the latter case, the first verb can e.g. be suffixed with the perfective aspect-*le:*

(i) Zhèi-ge wèntí , wǒmen yánjiū-le yánjiū
this -CL problem 1PL study -PERF study
'This problem, we have studied it a bit.'

16. Naturally, the reduplication as [$_{A^0}$ ABAB] is equally excluded for all of these disyllabic monomorphemic adjectives (e.g. *[$_{A^0}$ yǎotiǎoyǎotiǎo] 'graceful'), because reserved for adjectives which do have a word-internal structure.

(73) a. módēng 'modern' => * mómódēngdēng
b. yōumò 'humourous' => * yōuyōumòmò

When an initially monomorphemic disyllabic adjective has been reanalyzed as consisting of two morphemes ("backformation"), reduplication is possible. Again, backformation and the ensuing possibility of reduplication is available both for 'native' adjectives (cf. (74a)) and for phonetic borrowings (cf. (74b)):

(74) a. hútu 'confused, bewildered' => húhútutu (cf. Lu Zhiwei 1975: 18)
b. làngmàn 'romantic' => lànglàngmànmàn
(= phonetic borrowing of *romantic*)

Besides the AABB and ABAB reduplication pattern, there are other patterns of partial reduplication, associated with a special type of connotation. The pattern 'A*li*AB' always carries a negative connotation (cf. (76)), whereas the (total reduplication) patterns 'AA' and 'AABB' can be associated with either a positive, neutral, or negative connotation (cf. (75)):

(75) a. luàn 'chaotic' => luànluàn 'chaotic' (but less so than *luàn*)
b. bái 'white' => báibái '(thorougly) white'
c. bèn 'dull, foolish, clumsy' => bènbèn 'very foolish, clumsy'

(76) a. hútu 'confused, bewildered' => húlihútu 'muddle-headed'
(vs. => húhútutu 'confused, bewildered')
b. mǎhu 'casual, careless' => mǎlimǎhu 'careless, sloppy'
(vs. => mǎmǎhuhu 'not bad, still ok')

In the reduplication pattern 'A-BB', 'BB' provides a metaphoric description of the property denoted by the adjective (cf. Karl: 287ff):

(77) a. bái-huā-huā 'white-flower-flower' = 'shining white'
b. bái-xuě-xuě 'white-snow-snow' = 'as white as snow'

(78) a. hēi-yóu-yóu 'black-oil-oil' = 'jet-black, shiny black'
b. hēi-yā-yā 'black-press-press' = 'dense, dark' (said of e.g. people in a crowd)

4.2 Derived adjectives as a distinct class

In order to obtain the full picture, another fact needs to be taken into account, viz. that modifier-head adjectival compounds such as *xuě-bái* 'snow-white' = 'as white as snow' – in their *non*-reduplicated form – pattern with reduplicated adjectives, and not with simple adjectives. As will however emerge from the ensuing discussion, this is in fact the expected result, given the syntactic and semantic properties of modifier-head

compounds.[17] In the remainder of the present text, we will therefore use the label *derived adjectives* for the class comprising reduplicated adjectives (with total or partial reduplication) as well as modifier-head compounds (be they reduplicated or not), in contrast to the class of *simple adjectives*.

In general, derived adjectives can have all of the following three functions: attributive, predicative, and adverbial (with the exception of reduplicated modifier-head compounds which cannot function as adverbs):[18]

(79) a. gāogāoxìngxìng de háizi
happy SUB child
'happy children'

b. Tā gāogāoxìngxìngde[19]
3SG happy
'He is happy.'

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17. Chinese linguists (e.g. Zhu Dexi 1956/80) have always subsumed reduplicated adjectives and head-modifier adjectives (both in their non-reduplicated and reduplicated form) under the same class of 'complex forms', without however giving an explicit motivation for this at first sight surprising classification. Cf. Paul (2006) for demonstrating that it is the unacceptability of both reduplicated and head-modifier adjectives in the *de*-less modification structure (cf. Section 4.4 below) that constitutes the reason for including them in the same class.

18. As noted by Paris (1979), absolute (i.e. intersective non-predicative) adjectives never reduplicate: *fāng* 'square', but not **fāngfāng*.

19. Note that in the case of reduplicated adjectives, *de* is part of the reduplicated form itself; accordingly, sentences (79b)–(81b), (83)–(84) where the reduplicated form functions as a predicate cannot be analysed as cases of predication with *shi…de* (cf. (4a), (5a) above) from which *shi* would have been dropped. When a reduplicated adjective functions as a modifier as e.g. in (79a), we assume haplology between the *de* of the reduplicated adjective and the subordinator *de* into one surface *de*, similar to the generally acknowledged haplology of the sentence-final complementizer *le* with the perfective verbal suffix -*le* in case the verb occupies the sentence-final position: V-*le le* # => *V le* # (cf. Chao 1968: 247). Evidence for the haplology of the reduplication *de* with the subordinator *de* comes from Chinese dialects where these two *de*'s are phonologically different and can hence co-occur (cf. Zhu Dexi 1993).

The exact role and distribution of *de* in the reduplicates is far from clear. Lü Shuxiang et al. (1980/2000) only note that *de* is optional for 'AABB' reduplicates when functioning as the so-called descriptive complement introduced by *de* (Note that this *de* is different from those already encountered and has so far not been satisfactorily analysed):

(i) Tā shōushi de zhěngzhěngqíqí(de) (Lü et al. 1980/2000: 719)
3SG tidy DE neat
'He tidied up very neatly.'

c. | Tā | gāogāoxìngxìngde | chàng | gē |
|---|---|---|---|
| 3SG | happy | sing | song |

‘He is singing happily.’

(80) a.

yì-zhī	hǎohǎode	bǐ
1 -CL	good	pen

‘a perfectly good pen’

b.

Wǒ	zuótiān	hái	hǎohǎode,	jīntiān	jiù	bìngdǎo	le
1SG	yesterday	still	good	today	then	be.ill	PART

‘Yesterday, I still felt ok, but today I’m ill.’

c.

Nǐ	hǎohǎode	gēn	tā	shuō,	bié	shēng	qì
2SG	good	with	3SG	talk	not	produce	air

‘Talk to him nicely and don’t get angry.’

(81) a.

tōng -hóng	(-tōng -hóng)	de	liǎn
thorough-red	-thorough-red	SUB	face

‘a scarlet face’

b.

Ta -de	liǎn	tōng -hóng	(-tōng -hóngde)
3SG-SUB	face	thorough-red	-thorough-red

‘His face was scarlet.’

(82) a.

bǐ -zhí	de	shù-gàn
brush-straight	SUB	tree-trunk

‘perfectly straight tree trunks’

b.

Gōnglù	bǐ -zhí
highway	brush-straight

‘The highway is perfectly straight.’

c.

Tā	bǐ -zhíde	zhàn	zài	lǎoshī	de	qiánmiàn
3SG	brush-straight	stand	at	teacher	SUB	front

‘He is standing perfectly straight in front of the teacher.’

(83) Zhu Dexi (1956/80: 11)

Liǎn	cháng-chángde,	yáchǐ	yě	cháng-chángde
face	long -long	tooth	also	long -long

‘The face is long, and the teeth are long, too.’

(84)

Tiān	yǐjīng	hēi -hūhūde	le
sky	already	dark-HUHU	PART[20]

‘The sky is already dark.’

The data furthermore suggest that non-reduplicated modifier-head adjectival compounds such as *xuě-bái* ‘snow-white’ preferably appear without *de*, though this cannot be generalized and also varies from speaker to speaker.

20. No meaning is associated with *hūhū* on its own.

Unlike simple adjectives, derived adjectives cannot appear in the comparative construction and are incompatible with degree adverbs such as *fēicháng* 'very', *tèbié* 'particularly' etc. Adverbs such as *zhème*, *nàme* 'this/that way; so, such' are, however, acceptable (and for some native speakers also *tài* 'too', cf. (86)):

(85) Tā -de yīfu bǐ nǐ -de
3SG-SUB clothes compared.to 2SG-SUB
gèng bái / gèng gānjìng / *báibáide/*gāngānjìngjìngde/*xuě -bái
even white / even clean / white / clean snow-white
'His clothes are (even) cleaner/whiter/*more snow-white than yours.'

(86) Tā fēicháng pàng/*fēicháng pàngpàngde/#tài pàngpàngde
3SG very fat / very fat / too fat
'He is very/too fat.'

(87) *Tā -de lǐansè tèbié tōnghóng(-tōnghóngde)
3SG-SUB face particularly scarlet
('His face is particularly scarlet.')

(88) Tā -de liǎnsè wèishénme nàme tōnghóng-tōnghóngde ?
3SG-SUB complexion why that.way scarlet
'Why is his face so red?'

(89) Lǎo zhème màn-tēngtēngde kě bù xíng[21]
always this.way slow-TENGTENG really NEG possible
'It's impossible to be always so sluggish.'

Derived adjectives cannot be negated by *bù*:

(90) Tā bù pàng /*bù pàngpàngde
3SG NEG fat / NEG fat
'He is not fat.'

(91) Tā -de yīfu bù gānjìng /*bù gāngānjìngjìngde /*bù
3SG-SUB clothes NEG clean / NEG clean / NEG
xuěbái (- xuěbáide)
s-white - s-white
'His clothes are not clean/snow-white.'

As illustrated in (79)–(84) above, derived adjectives can very well function as predicates on their own and be modified by VP-level adverbs such as *hai* 'still', *yě* 'also' *yǐjīng* 'already' which only precede predicative elements (cf. (80b), (83), (84)). The incompatibility with

21. No meaning is associated with *tēngtēng* on its own.

negation and with degree adverbs, which are equally typical of predicative elements, can therefore not be due to syntax, but must have semantic reasons.

The unacceptability of modifier-head compounds in the comparative construction (cf. (85) above) allows us to determine the semantic problem at stake. Derived adjectives are not admitted here because in a comparison, a quantitative judgement with respect to the presence of a property is asked for, not a description of this property. The predominance of the descriptive component in derived adjectives is particularly visible in the case of modifier-head compounds:

(92) Tā -de yīfu bù shì xuě -bái , érshì bǐ xuě hái bái
3SG-SUB clothes NEG be snow-white but compared.to snow still white
'Her dress is not as white as snow, but even whiter than snow.'

The second clause in (92) is obligatory, because it makes explicit that it is the descriptive component which is negated, not the property itself. The latter cannot be negated, hence the incompatibility with *bù* (cf. (91)). Negation of the adjective with *bù shì* functioning as metalinguistic negation, however, is possible, because *bù shì* can bear on a subpart of the compound only.

This line of reasoning showing the incompatibility of derived adjectives with negation to be of a semantic, not a syntactic nature is corroborated by the acceptability of derived adjectives with adverbs of intensity such as *zhème*, *nàme* 'so, such' (cf. (98), (99)). Consequently, derived adjectives are not on a par with absolute adjectives; the latter do not allow these adverbs, because they are essentially binary. Also recall that absolute adjectives – being non-predicative adjectives – need *shì…de* in order to form a predicate (cf. Section 2.1 above), another contrast with respect to the systematically predicative derived adjectives.

Besides their systematic ability to function as predicates, attributes and adverbs, derived adjectives also behave alike with respect to two other phenomena, viz. compound formation and *de*-less modification.

4.3 The unacceptability of derived adjectives in verbal compounds

As has been observed in the literature, reduplicated adjectives – unlike their simple counterparts – are excluded from the formation of resultative verb compounds of the form 'verb-adjective' where the adjective indicates the result of the action expressed by the verb:

(93) a. Tā bǎ zhuōzi cā -gānjìng le
3SG BA table wipe-clean PART
'He wiped the table clean.'

b. *Tā bǎ zhuōzi cā -gāngānjìngjìng le
3SG BA table wipe-clean PART

(94) a. Tā bǎ chuángdān dié -zhěngqí le
3SG BA sheet fold-neat PART
'He folded the sheets neatly.'

b. *Tā bǎ chuángdān dié -zhěngzhěngqíqí le
3SG BA sheet fold-neat PART
(Sybesma 1991: 133, (13/14))

(95) a. Wūzi de qiáng dōu shuā-baí le
room SUB wall all paint-white PART
'The walls of the room have all been painted white.'

b. *Wūzi de qiáng dōu shuā-baíbaí le
room SUB wall all paint-white PART

(96) a. Lúzi shāo-rè le
stove burn-hot PART
'The stove has burnt itself hot.'

b. *Lúzi shāo-rèrè le
stove burn-hot PART

Since disyllabic adjectives ((93a), (94a)) are as acceptable in these compounds as monosyllabic ones ((95a), (96a)), the unacceptability of the 'AA' reduplicates in examples (95b) and (96b) cannot be reduced to a phonotactic constraint sensitive to the number of syllables.

As demonstrated below, the same constraint equally holds for (non-reduplicated) 'modifier-head' adjectival compounds, i.e. like reduplicated adjectives, they cannot enter into the formation of resultative verb compounds:

(97) a. Tā kū -hóng-le yǎnjing
3SG cry-red -PERF eye
'He cried his eyes red.'

b. *Tā kū -tōnghóng-le yǎnjing
3SG cry-scarlet -PERF eye

(98) a. Tā shǒu dòng-hóng le
3SG hand freeze-red PART
'His hands were red-frozen.'

b. *Tā shǒu dòng-tōnghong le
3SG hand freeze-scarlet PART

(99) a. Wūzi de qiáng dōu shuā-baí le (= (95a) above)
room SUB wall all paint-white PART
'The walls of the room have all been painted white.'

b. *Wūzi de qiáng dōu shuā- xuě -baí le
room SUB wall all paint- snow-white PART

(100) a. Diànxiàn lā -zhí le
electric.wire pull-straight PART
'The electric wire has been pulled straight.'

b. *Diànxiàn lā -bǐ -zhí le
electric.wire pull-brush-straight PART

The general ban on derived adjectives to enter into the formation of resultative verb compounds clearly sets them apart from the class of simple adjectives. It also further corroborates our claim that modifier-head compounds – both in their non-reduplicated as well as in their reduplicated form – belong to the same class as reduplicated adjectives.

4.4 The unacceptability of derived adjectives in the *de*-less modification structure

Another important characteristic of derived adjectives is their unacceptability in the *de*-less modification structure (cf. Lü et al. 1980/2000: 719):

(101) a. gānjìng (de$_{sub}$) yīfu
clean SUB clothes
'clean clothes'

b. gāngānjìngjìng *(de$_{sub}$) yīfu
clean SUB clothes
'(thoroughly) clean clothes'

(102) a. bái (de$_{sub}$) zhǐ
white SUB paper
'white paper'

b. báibái/xuěbái / xuěbái xuěbái *(de$_{sub}$) zhǐ
white /snow-white/ s-white s-white SUB paper
'(snow-) white paper'

(103) a. hóng (de$_{sub}$) chènshān
red SUB shirt
'a red shirt'

b. tōnghóng/ hóng-hóng *(de$_{sub}$) chènshān
all.red / red -red SUB shirt
'a scarlet shirt'

As argued for at length in Sections 2.3 and 3.3 above, this unacceptability cannot be reduced to a prosodic ban against non-monosyllabic adjectives in the *de*-less modification structure nor to alleged wordhood of the sequence 'adjective N' (contra Sproat & Shih 1988; Lu & Duanmu 2002).

Instead, we propose an account in semantico-pragmatic terms. As noted by Zhu Dexi (1956/80: 5–6) and subsequent authors (cf. e.g. Tang T.-C. 1988), reduplicated adjectives introduce the speaker's subjective evaluation of the property expressed by the adjective rather than solely refer to that property (as is the case with simple adjectives). Accordingly, reduplicated adjectives cannot be interpreted as defining properties and are excluded from the *de*-less modification structure, because the resulting NP does not satisfy the condition of a plausible, natural classification. The same reasoning applies to modifier-head compounds such as *xuě-bái* 'snow-white' = 'as white as snow', *bǐ-zhí* 'brush-straight' = 'perfectly straight' etc.: as their internal structure shows, these adjectives provide the description of a property ('as white as snow', 'as straight as a brush') rather than purely refer to it. It is this semantic component of evaluating, describing a property, in contrast to referring to a property, which is shared by reduplicated adjectives and modifier-head compounds and which explains their belonging to the same class.[22]

4.5 The productivity of the 'AABB' reduplication pattern

The systematic syntactic and semantic differences between simple and derived adjectives discussed so far justify their analysis as two separate morphological classes, the relation between them being one of derivation. Among the different derivation processes (modifier-head compound formation, total or partial reduplication), the 'AABB' reduplication represents the productive and regular pattern. This is evidenced by the fact that the derivation of 'AABB' reduplicates is not limited to cases where a corresponding simple adjective 'AB' exists, but applies to all kinds of morphemes. Importantly, the resulting 'AABB' reduplicates once again have all of the three functions typical of the class of derived adjectives: attributive, predicative and adverbial (some reduplicates only function as adverbs, though; cf. (106)–(107)).

(104) a. pó- -pó -mā -mā 'womanish, fussy, sentimental,'
old.lady-old.lady-mother-mother
(N.B. There exists no "corresponding" *pó-mā*)

b. Zhè-ge rén pó-pó-mā-mā-de
this-CL person fussy
'This person is fussy.'

22. Note that *encoding* the speaker's subjective evaluation via a derived adjective should not be confounded with whatever subjective connotation may enter into the meaning of (stage-level predicate) adjectives such as *gānjìng* 'clean', *piàoliang* 'pretty', *qíguài* 'bizarre'. The fact that the latter *are* acceptable in the *de*-less modification structure (cf. (10), (11) above), whereas derived adjectives are not, clearly shows that the grammar of Chinese makes this distinction.

c. Wǒ bù xǐhuan zhè-ge pó-pó-mā-mā de rén
1SG NEG like this-CL fussy SUB person
'I don't like this fussy person.'

d. Tā pó-pó-mā-mā-de shuō-le yī dà duī
3SG fussy talk -PERF 1 big heap
'He fussily talked a lot.'

(105) a. guǐ -guǐ -suì -suì 'furtive, stealthy, sneaky'
ghost-ghost-evil.spirit-evil.spirit
(N.B. There exists no "corresponding" *guǐ-suì*)

b. Zhè jiāhuo guǐ-guǐ-suì-suì-de
this guy stealthy
'This guy is stealthy.'

c. yì-ge guǐ-guǐ-suì-suì de xiǎotōu
1 -CL stealthy SUB thief
'a stealthy thief'

d. Zhè-ge xiǎotōu guǐ-guǐ-suì-suì-de pǎo dào wūzi -li lái
this-CL thief stealthy run to house-inside come
'This thief ran stealthily into the house.'

(106) a. kū -kū -tí -tí 'with sobs and tears, weeping and wailing'
cry-cry-weep.aloud-weep.aloud

b. Tā kū-kū-tí-tí-de pǎo-guò -lái
3SG weeping.and.wailing run-pass-come
'He came running over weeping and wailing.'

(107) a. sān-sān-liǎng-liǎng 'by twos and threes'
3 3 2 2

b. Tāmen sān-sān-liǎng-liǎng-de zǒujìn-le jiàoshì
3PL 3 3 2 2 enter -PERF classroom
'They entered the classroom by twos and threes.'

These cases put forward the derivational nature of reduplication in a particular clear fashion, the output being the same, independently of the categorial identity of the input.

4.6 Intermediate summary

This section has provided ample evidence in favor of two morphologically different classes of adjectives in Chinese, viz. simple vs. derived adjectives.[23] The class of derived

23. Given the properties of simple and derived adjectives discussed in detail above, Huang Shi-Zhe's (2006) approach cannot be on the right track. Huang Shi-Zhe claims simple adjectives to be of the same semantic type ⟨e⟩ as bare nouns, and derived adjectives to be of the type ⟨e,t⟩ (glossing over the differences between predicative and non-predicative simple adjectives). Furthermore, she postulates a type matching constraint in NP modification

adjectives subsumes (completely and partially) reduplicated adjectives as well as modifier-head compounds; they can systematically function as predicates, attributes and adverbs. Accordingly, derived adjectives lack the bipartitioning into predicative and non-predicative adjectives observed for the class of simple adjectives. The common semantic denominator of derived adjectives has been shown to evaluate, describe a property rather than purely refer to it (as simple adjectives do). It is this special semantics of derived adjectives which explains their incompatibility with degree adverbs and with negation as well as their unacceptability in the comparative construction and the *de*-less modification structure.

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structures, requiring the modifier and the modifiee to be of the same semantic type, i.e. ⟨e⟩ in *de*-less modification. While this might perhaps capture the fact that derived adjectives, being ⟨e,t⟩, are excluded from the *de*-less modification structure, it makes wrong predictions for the overall syntax/semantics of adjectives, some of which are briefly discussed here. Simple adjectives being of the same type as bare nouns, they are wrongly predicted to appear in the copula structure. Furthermore, being argumental, simple adjectives are not expected to function as predicates without any of the "predication markers" such as the adverb *hen* 'very' "turning" the ⟨e⟩ type adjective into the required type ⟨e,t⟩ (p. 352). However, it is well-known (see Paris 1989: 112) that a simple adjective can constitute a predicate on its own and then indicates the comparative degree of the property in question:

(i) Zhèi-běn shū guì (= Paris 1989: 112, (51))
this -CL book expensive
'This book is more expensive.'

When used in a contrastive pair of sentences, the adjective is interpreted in the neutral degree:

(ii) Zhèi-běn shū guì nèi -běn piányi / bù guì (= Paris 1989: 112, (54))
this -CL book expensive that-CL cheap / NEG expensive
'This book is expensive, that one is cheap/is not expensive.'

In a yes/no question – either with the sentence-final particle *ma* or in the form of an 'A-*bù*-A' question (cf. Huang C.-T. 1982) – the adjective is equally interpreted in the neutral degree:

(iii) Zhèi-běn shū guì ma ?
this -CL book expensive PART

(iv) Zhèi-běn shū guì bù guì?
this -CL book expensive NEG expensive
'Is this book expensive?'

Last, but not least, the possibility to negate adjectives with *bù* demonstrates that they do not need any "predication marker" in order to function as predicates (cf. (ii) above).
Also note that with bare nouns, the "predication marker" *hen* 'very' is not able to change the semantic type from ⟨e⟩ into ⟨e,t⟩: **hen* N, a contrast unexpected under Huang Shi-Zhe's (2006) proposal.

5. Conclusion

We have provided extensive evidence for adjectives as a distinct part of speech in Mandarin. More precisely, we have argued that Chinese has as many as *two* morphologically different classes of adjectives, simple and derived adjectives, each with its own set of predictable semantic and syntactic properties. Furthermore, we have demonstrated that typological studies have to take into account both types of modification available in Mandarin Chinese: that where the subordinator *de* intervenes between the adjective and the head noun, 'A *de* N', and the case of simple juxtaposition of the adjective and the noun 'A N'. To acknowledge adjectives as a distinct part of speech not only allows us to correct the typological picture we have of so-called "isolating" languages, but also challenges current proposals where all adnominal modifiers subordinated by *de* are either analyzed as relative clauses (cf. Sproat & Shih 1988, 1991; Duanmu 1998; Simpson 2001) or as small clauses (cf. Den Dikken & Singhapreecha 2004).

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PART II

Semantics

Comparisons of similarity and difference

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The present paper proposes an analysis of comparisons of similarity and difference in English involving *different*, *same* and *like*. First, I examine the relationship between comparisons involving *different, same* and *like* and scalar comparisons exemplified by *I am taller now than I used to be*. Since both constructions differ only on a few points, I conclude that comparisons of similarity and difference should be analyzed as a subclass of comparative constructions. The second part of the paper analyzes the scope of comparisons of similarity and difference: I argue that these comparisons are best analyzed as comparisons between sets of properties.

1. Introduction

This paper examines certain constructions involving *different*, *same*, and *like*, such as those seen in (1).

(1) a. I am different now than I used to be.
    b. I am the same now as I used to be.
    c. I am still a great deal like I used to be.

I use the term "comparisons of similarity and difference" to refer to the underlined phrases in (1), since informally, each example can be described as asserting that some amount of similarity or difference holds between my current state and some previous state of mine. Comparisons of similarity and difference have not received a great deal of attention from linguists, save for the occasional mention of their affinity to scalar comparisons. I use the latter term to refer to well-studied comparative constructions like those seen in (2).

(2) a. I am taller now than I was before.
    b. I am as happy now as I was before.

My investigation of comparisons of similarity and difference is organized around two questions. First, what is the extent of the affinity between such comparisons and "ordinary" scalar comparisons? This question is my concern in Section 2, where I show that comparisons of similarity and difference in fact possess a great many of the characteristic

features of scalar comparisons. The affinity between the two types of comparison is thus quite large, and justifies the view that the constructions in (1) should ultimately be analyzed as comprising a distinct subclass of comparative constructions. Second, what are comparisons of similarity and difference comparisons between? This question is my concern in Section 3; the answer that I argue for there is that such comparisons are best understood as comparisons between sets of properties. Before arriving at this answer, I first consider, and eventually reject, two alternative answers, namely that such comparisons are either comparisons between individuals, or else comparisons between (sets of) degrees. In the remaining sections of the paper, I develop a formal semantic analysis of comparisons of similarity and difference based upon the notion that these constitute comparisons between sets of properties (Section 4), and investigate some of the further issues that arise from this approach (Section 5). Section 6 contains a brief conclusion.

2. Two kinds of comparison compared

The observation that comparisons of similarity and difference bear some resemblance to scalar comparisons is certainly not a novel one. For instance, it has often been noted about *different* and *same* that these govern complements introduced by *than* and *as*, a characteristic feature of the scalar comparison heads *more*/*-er*, *less*, and *as*. In the syntactic literature on comparative constructions, one also finds occasional reference to properties of scalar comparative constructions that are shared by those involving *different*, *same*, and *like*, particularly in the realms of complementation and modification (see Sections 2.2 and 2.3 for references). In fact, the parallelism between the two runs very deep, much more so than has been previously recognized, and it is the purpose of this section to demonstrate the extent of this parallelism. Doing so also provides an opportunity to introduce much of the data that I take as relevant to the semantic analysis of comparisons of similarity and difference, as well as some initial motivation for analogizing their semantics to that of scalar comparisons.

2.1 External distribution

Consider first the external distributions of scalar comparisons and those of similarity and difference. Broadly considered, these appear in the same range of syntactic positions and perform the same range of grammatical functions. Both types of comparisons may function (i) predicatively, after copular *be* and as the complements of verbs like *sound*, *look*, and *act*, (ii) attributively, as NP-internal modifiers, and (iii) adverbially, in unselected positions and as the complements of verbs like *word*,

treat, and *behave*.[1] Each of these possibilities is respectively illustrated by the (a)-, (b)-, and (c)-examples in (3)–(6).[2,3]

(3) a. John is **crazier** than I expected him to be.
    b. Lou drives a **faster** car than Mary does.
    c. You should word your letter **as carefully** as I worded mine.

(4) a. Paul's voice sounds **different** than it did before.
    b. These days, the Macworld conference attracts a **different** audience than it did in the past.
    c. The press has treated Arnold **differently** than they've treated Sean Penn or Barbra Streisand for expressing their political views.

(5) a. George looks **the same** as he did the last time I saw him.
    b. The Mercury Gran Marquis is **the same** car as the Ford Crown Victoria, only sold under a different name.
    c. Once the bumblebees acclimated to the habitat, they behaved **the same** as they would in a natural environment.

(6) a. Ringo's friend acted just **like** I thought he would–a lot of passion and little class.
    b. Our citizens need to be informed about how to vote properly so that we don't have problems **like** there were in Florida.
    c. I read Roger Ebert's column because the man writes **like** I speak.

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1. Both comparisons can also function appositively, as in (i) and (ii).

(i) As tall as he is, John still can't reach the top shelf.
(ii) John, like Bill, was also interrogated by the FBI.

Also of interest are such uses of *like* as in (iii), where it combines with a structurally complete clause and alternates with *as if* and *as though*.

(iii) It sounds {like, as if, as though} you don't want to be my girlfriend anymore.

The structure and interpretation of these constructions is beyond the scope of this paper.

2. Many of the examples in this paper were culled from the Internet using the Google search engine. For the most part, I do not distinguish attested examples from invented ones.

3. While the appearance of the definite article with NP-internal *same* in (5b) is not surprising, its appearance in (5a) and (5c) is, given the absence of an overt nominal head. Throughout this paper, I will treat the definite article when appearing with predicative and adverbial uses of *same* as if it were contentless, though this seems unlikely to be correct. Exactly what licenses its appearance here is something that I do not presently understand.

Note that in its attributive guise, *like* must occur postnominally, unlike *different* and *same* (compare (6b) to (4b) and (5b)).

2.2 Complement structures

It has been observed in various places that there is a striking parallelism between the complements that occur in scalar comparisons and those of similarity and difference. In fact, the two types of comparison permit nearly identical ranges of complement structures. Nonetheless, there is also an important difference in their complementation possibilities, which, to the best of my knowledge, has so far gone unnoticed. In Section 2.2.1 below, I review the complementation parallels between the two types of comparison, while Section 2.2.2 addresses the difference that exists between them.

2.2.1 *Complementation parallels*

Both scalar comparisons and those of similarity and difference can occur with either nominal or clausal complements (Huddleston & Pullum 2002: sect. 13.5, Jackendoff 1977: sect. 8.3). These possibilities are respectively illustrated by the (a)- and (b)-examples in (7)–(10).

(7) a. Chris is **as tall** as Bill.
b. Chris is **taller** than Bill is.

(8) a. The book of Deuteronomy is **different** {than, from} the previous books.
b. College is **different** than I expected it to be.

(9) a. I feel **the same** as you about Barbie!
b. The place looks **the same** as it looked a half century ago.

(10) a. The groundhog is **like** most other prophets: it delivers its prediction and then it disappears.
b. I certainly tried to act **like** I thought he would act.

Notice that whereas *like* governs its complements directly, the relations between *different* and *same* and their complements are respectively mediated by *than* and *as*. When *different* occurs with a nominal complement, the preposition *from* alternates with *than*.

Each of the clausal complements in the (b)-examples above contains a gap in a position normally occupied by a property-denoting term (cf. *Bill is* *(*tall*), *I expected college to be* *(*boring*), *This place looks* *(*familiar*), *Please try to act* *(*happy*) *when the chancellor visits*). Another parallel between the two types of comparison is that in both, the position of this gap is island-sensitive.

(11) *Chris is **taller** than I wonder whether Bill is.

(12) a. *College is **different** than I wondered whether it would be.
b. *The place looks **the same** as I met a man who said it looked.
c. *I tried to act **like** I heard a rumor that she wants her students to act.

Furthermore, the clausal complements of both types are subject to the same kinds of additional reduction. In each example below, a verb phrase is missing from the clausal complement; (13a) and (e.g.) (14a) are interpreted as synonymous with the unreduced *Chris looks as happy as I expected him to look* and *Paul's voice sounds different than it sounded before*.

(13) Chris looks **as happy** as I expected him to.

(14) a. Paul's voice sounds **different** than it did before.
b. George looks **the same** as he did the last time I saw him.
c. Do you feel **like** I do?

The following examples show that even an entire embedded clause be omitted; (15a) and (e.g.) (16a) are interpreted as synonymous with the unreduced *Chris turned out to be taller than I had previously suspected that he was* and *The book turned out much differently than I had thought it would turn out* (Huddleston & Pullum 2002: sects. 13.2.1, 13.5).

(15) Chris turned out to be **taller** than I had previously suspected.

(16) a. The book turned out much **differently** than I had thought.
b. I had used some invalid syntax that just happened to do **the same** as I intended on my test data.
c. Martin sounded nothing like I expected–but then again, hardly anyone looked or sounded **like** I expected.

The sort of reduction seen in (15) and (16) is particularly noteworthy, since unlike verb phrase ellipsis, which is plausibly involved in (13) and (14), the possibility of omitting an entire embedded clause appears to be a unique feature of comparative constructions. In other contexts which allow for verb phrase ellipsis, the clausal complements of *suspect*, *think*, *intend*, and *expect* cannot go entirely unexpressed.[4]

4. There are of course verbs for which examples like (17d) are acceptable:

(i) I won the Nobel Prize!
–I {know, remember, can tell}.

The phenomenon illustrated in (i) is known in the literature as Null Complement Anaphora. Moltmann (1993) observes that the class of verbs that permit Null Complement Anaphora is not coextensive with the class of verbs that permit their clausal complements to go unexpressed in comparative constructions; the examples in the text, as well as the contrast between (i) and (ii), support her observation.

(ii) a. *Chris turned out to be taller than I had previously known.
b. *The book turned out differently than I could tell.

I follow Moltmann in assuming Null Complement Anaphora to be distinct from the phenomenon illustrated in (15) and (16).

(17) a. If Andrew knows what's best for him, he'll call his girlfriend right now.
–I suspect *(that he will).
b. He said everything that I thought *(that he would).
c. Unfortunately, I forgot to post your bail, but I intended *(to).
d. I won the Nobel Prize!
–I expected *(that you would).

If this restriction to comparative constructions indeed holds, then the facts in (16) provide a strong argument for taking constructions involving *different*, *same*, and *like* to constitute a kind of comparative construction.

2.2.2 *An important difference*

As I pointed out above, there is an important difference in the complementation possibilities found with scalar comparisons and those of similarity and difference. Alongside examples like (7b), where the gap within the clausal complement replaces a property-denoting term, one also finds scalar comparisons with so-called "subdeletion" complements, where the gap occurs in a position normally occupied by a degree term.

(18) a. The table is **as long** as it is wide.
b. *The table is **as long** as it is {very, somewhat} wide.

That the clausal complement in (18a) contains a gap is demonstrated by the unacceptability of (18b), where an overt degree expression appears before *wide*.

The following examples show that subdeletion complements are apparently impossible in comparisons of similarity and difference.

(19) a. *Deuteronomy is **different** than the other books are interesting.
b. *This place is **the same** as it was beautiful a half century ago.
c. *Ringo is a lot **like** I am happy.

The generalization is thus the following one: whereas the smallest possible gap in clausal complements of (predicative) scalar comparisons is one that corresponds to a degree term, the smallest possible gap in clausal complements of (predicative) comparisons of similarity and difference is one that corresponds to a property-denoting term.

2.3 Modifiers

Modification facts also support the view that the two types of comparison are closely related. Since the modifiers of *different* and *like* differ significantly from those of *same*, I address these separately in Sections 2.3.1 and 2.3.2 below. Also, this discussion of *different* and *like* covers only one aspect of their modification possibilities; another set of modifiers is addressed in Section 5.2.

2.3.1 *Modifiers of* different *and* like

Amongst the modifiers that occur in scalar comparisons of inequality, there is a class whose members provide some measure of the disparity that exists between the compared items. Belonging to this class are the modifiers *much*, *a lot*, *a great deal*, *no*, (negative polarity) *any*, and *little*.

(20) a. Chris is {much, a lot, a great deal} **happier** than I expected him to be.
b. I'm {no, not any} **more intelligent** now than I was before.
c. The race takes place on a strip that in some places is little **wider** than an old-fashioned, two-lane U.S. highway.

The examples in (21) show that the overall distribution of these modifiers is restricted so that they cannot occur with simple gradable adjectives.

(21) a. *Chris is {much, a lot, a great deal} happy.
b. *I'm {no, not any} intelligent.
c. *The race takes place on a strip that in some places is little wide.

These modifiers do, however, occur with *different* and *like* (Bresnan 1973: 278 fn. 4, Huddleston & Pullum 2002: sect. 13.5). Interestingly, with *like* one finds *nothing* and *anything* instead of *no* and *any*.

(22) a. My leadership role will be {much, a lot, a great deal} **different** than it was last year.
b. I'm {no, not any} **different** than I used to be.
c. Many professing Christians are practicing shameful lifestyles that are little **different** than those of unbelievers.

(23) a. Behind the scenes, she's {much, a lot, a great deal} **like** she is on the air.
b. I'm {nothing, not anything} **like** I used to be.
c. The character that Kevin Sorbo plays is little **like** the Hercules of Greek mythology. To help make Hercules acceptable for present day audiences, the filmmakers remade the character in a present day image.

The facts in (22) and (23) show that despite their status as simple adjectives (or perhaps preposition, in the case of *like*; see Maling 1983), *different* and *like* nonetheless demonstrate an affinity to the morphosyntactically complex heads of scalar comparisons.

2.3.2 *Modifiers of* same

With *same*, one finds a different group of modifiers, including *nearly*, *almost*, *roughly*, *not quite*, and *just about* (Huddleston & Pullum 2002: sect. 13.5).

(24) a. The 1999 model is {nearly, almost, roughly} **the same** car as the 1998 is, except for a few minor changes with little or no effect on power.
b. Frozen fish isn't quite **the same** as fresh fish.
c. I go through my day just about **the same** as anyone else does, the only difference is the testing of my blood sugar and my shots.

Here, the proper parallel is to scalar equative comparisons, where one also finds these modifiers (op. cit.).

(25) Chris is {nearly, almost, roughly, not quite, just about} **as tall** as I expected him to be.

2.4 Negative polarity item licensing

A well-known fact about scalar comparisons is that negative polarity items (NPIs, Ladusaw 1980) are licensed in their clausal complements. The examples in (26) show that this is the case for both scalar comparisons of inequality as well as scalar equative comparisons.

(26) a. I'm **stronger** now than I've <u>ever</u> been before.
b. My urge to steal was **stronger** than I <u>could help</u>.
c. Her mind is **as quick** as it <u>ever</u> was.
d. Jim is **as competent** as <u>anyone</u> here <u>could possibly</u> be.

What about comparisons of similarity and difference? Given the parallelism observed so far, we would expect NPIs to also be licensed in the clausal complements of *different*, *same*, and *like*. For the most part, this expectation is borne out, though the facts here are a bit complicated.

Beginning with clausal complements of *different*, the NPIs *any* and *ever* are amply attested here; two examples are given in (27a) and (27b). Other NPIs can also be found in this context, though it must be admitted that their occurrences are rather more scarce. Attested examples of the NPIs *care to V* and *can possibly* occurring in clausal complements of *different*(*ly*) are given in (27c) and (27d). Example (27e), involving the NPI *bother to V*, is invented, but strikes me as comparable in its acceptability to the others.

(27) a. I decided that we were going to do it **differently** than <u>anyone else</u> had done it before.
b. I felt **different** than I <u>ever</u> had before.
c. You may do things **differently** than I <u>care to</u> do them. Are you right or am I right? Neither of us is right or wrong…this is the computer field.
d. We reached Marseilles at last, and it was far **different** than we <u>could possibly</u> have imagined.
e. Unfortunately, the exam covered **different** material than I had <u>bothered to</u> study.

Turning to clausal complements of *same*, certainly the NPIs *any* and *ever* are licensed here, as the attested examples in (28) illustrate.

(28) a. I go through my day just about **the same** as anyone else does, the only difference is the testing of my blood sugar and my shots.

b. Robin's been belting out those classic Cheap Trick tunes for a quarter-century and sounds **the same** as he ever did!

Interestingly, I've yet to uncover attested instances of any other NPI in this context; this is a curious asymmetry between *different* and *same* that will go unaccounted for here.[5]

The facts surrounding *like* are more straightforward: NPIs do not appear to be licensed in its clausal complements at all. Some minimal contrasts that demonstrate this are given in (29).

(29) a. I decided that we were going to do it **like** {we, everyone else, *anyone else} had done it before.

b. I felt **like** I {always, once, *ever} had before.

c. We reached Marseilles at last, and it was a lot **like** we {had, *could possibly have} imagined.

d. You may do things **like** I {prefer to, *care to} do them.

One does find instances of *any* in clausal complements of *like*, as in (30a), but these seem quite clearly to be instances of free choice *any*. Observe, for example, that the omission of the modal *would* from the clausal complement in (30b) leads to unacceptability, in contrast to what is observed in (30c) for the ordinary universal NP *every other candidate*.

(30) a. Kerry reacted to the allegations **like** any other candidate would have.

b. *Kerry reacted to the allegations **like** any other candidate has.

c. Kerry reacted to the allegations **like** every other candidate {would have, has}.

This is no different from the pattern displayed by free choice *any* elsewhere (Carlson 1981).

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5. A reviewer asks whether the occurrences of *any* and *ever* in (28) are not in fact Free Choice Items, observing that they are interpreted universally in these examples. Note, though, that *any* and *ever* also receive universal interpretations when they occur in scalar comparisons:

(i) Max is taller than anyone expected him to be. ≈
Max is taller than everyone expected him to be.

(ii) Her mind is as quick as it ever was. ≈
Her mind is (at least) as quick as it was at all times in the past (where the quickness may vary across past times).

For recent discussion of this fact, see Zepter 2003.

(31) a. Any other candidate would have reacted similarly.
b. *Any other candidate has reacted similarly.
c. Every other candidate {would have, has} reacted similarly.

In summary, the parallelism between scalar comparisons and those of similarity and difference is partially supported by the NPI facts seen here. NPIs are licensed in the clausal complements of *different* and *same* (though the range of NPIs licensed in the latter context is quite restricted), but not in the clausal complements of *like*.

2.5 Sensitivity to "negative" expressions in clausal complements

Scalar comparisons and those of similarity and difference are both sensitive to the presence of negation and other downward monotone expressions in their clausal complements.

(32) a. Chris is **taller** than John said he is.
b. *Chris is **taller** than John denied he is.

(33) a. College is a lot **different** than I thought it would be.
b. *College is a lot **different** than I doubted it would be.

(34) a. I think that I feel **the same** as everyone else does.
b. *I think that I feel **the same** as no one else does.

(35) a. Duncan looks a lot **like** I do before my first cup of coffee.
b. *Duncan looks a lot **like** I don't before my first cup of coffee.

In each of (32)–(35), the only difference is the presence of a downward monotone expression in the (b)-example where it does not occur in the (a)-example. The (a)-examples are uniformly acceptable, while the (b)-examples are entirely unacceptable.

2.6 *De re/de dicto* ambiguities

Finally, both types of comparison give rise to certain ambiguities when they occur in intensional contexts, such as the clausal complements of verbs like *think*, *say*, and *realize*. Russell (1905) famously observed that (36) is ambiguous between a "mistaken" reading, under which I merely possess an incorrect belief about the yacht's size, and a "contradictory" reading, under which my belief about the yacht's size is necessarily false.

(36) I thought that your yacht is **longer** than it is.

Since von Stechow (1984a), most work on scalar comparisons has followed Russell in taking this ambiguity to reflect the possibility of either a *de re* or a *de dicto* interpretation of the clausal complement *than it is* with respect to the intensional verb *think*.

De re/de dicto ambiguities can also be detected for comparisons of similarity and difference when these occur in intensional contexts. Consider first *different* and *like*.

(37) Mary thinks that John sounded **different** than he did.
(38) My parents don't realize that I feel **like** I do.

The ambiguity of (37) mimics exactly that of (36); the example permits a "mistaken" reading, under which Mary merely possesses an incorrect belief about John's voice, and a "contradictory" reading, under which Mary's belief about John's voice is necessarily false. The readings associated with (38) involving *like* are of a different sort, though the ambiguity is no less striking. The example is ambiguous between an "inattentive" reading, under which my parents are unaware of my actual emotional state, and a "logically challenged" reading, under which they are unaware of a tautology (namely, the proposition that I feel like I do). In each of (36)–(38), the pragmatically bizarre reading reflects a *de dicto* interpretation of the clausal complement.

Turning to *same*, here one finds that, somewhat mysteriously, examples parallel to (37) and (38) are marginal.

(39) a. ?Mary thinks that John sounded **the same** as he did.
b. ?My parents don't realize that I feel **the same** as I do.

Although I have no account for the reduced status of the examples in (39), it is in the end harmless for our purposes, since the ambiguity in question is not tied to the presence of a pragmatically bizarre reading. Example (40) is also ambiguous between a *de re* reading and a *de dicto* one, albeit in a subtler fashion.

(40) Bill said that John looked **the same** as I expected him to.

Under one reading, Bill need not have made any reference to my expectations in his utterance, while under the other, he must have made some such reference. Here, the latter reflects a *de dicto* interpretation of the clausal complement.

3. What are comparisons of similarity and difference comparisons between?

Having illustrated many of the ways in which comparisons of similarity and difference resemble scalar comparisons, let me now take up the issue of what exactly these are comparisons between. My answer to this question is provided in Section 3.3, where I propose that comparisons of similarity and difference constitute comparisons between sets of properties. Before considering the merits of this proposal, however, it will be worthwhile to consider two alternative views that might suggest themselves from the literature, namely that such comparisons constitute comparisons between individuals, or else comparisons between (sets of) degrees. I explore these alternatives, as well as the problems they face, in Sections 3.1 and 3.2.

3.1 Comparison of individuals

The first possibility to consider is that comparisons of similarity and difference constitute comparisons between individuals.

3.1.1 *Background*

This idea derives from a substantial body of work investigating certain uses of *different* and *same* that will not be considered in this paper, namely those illustrated in (41) (see, e.g. Dowty 1985; Heim 1985; Carlson 1987; Moltmann 1992; Beck 2000; Barker 2007).

(41) a. Every student read a **different** book.
  b. **The same** salesman sold me these two magazine subscriptions.

In these examples, *different* and *same* do not occur with complements. Each example permits (at least) two readings: under one of them, what is asserted by (e.g.) (41a) is that every student read a book that is different from some particular contextually salient book, while under the other, the assertion is that every student read a book that is different from a book read by any other student. Carlson (1987) aptly characterizes the latter sort of reading as one in which "the sentence, in some way or other, provides its own context" (p. 532), and it is the possibility of such readings that the above-mentioned analyses are concerned with. Although these analyses vary greatly in their approaches, there are two assumptions that consistently run through them. The first is that *different* and *same* respectively express non-identity and identity, while the second is that what *different* and *same* ultimately evaluate for (non-)identity are individuals.

3.1.2 *Evaluation*

It is reasonable to ask whether these assumptions should be extended to all uses of *different* and *same*, including the simple predicative uses shown in (42). The most straight forward way of doing this yields the meanings given in (43) and (44) (see Beck 2000: 109 for a version of (43)).

(42) a. My new car is **different** {than, from} my previous one.
  b. Water is **the same** as H_20.

(43) ***different*** $= \lambda x_e.\lambda y_e.x \neq y$
(44) ***same*** $= \lambda x_e.\lambda y_e.x = y$

Under this view, *different* and *same* are simply relational adjectives; the relations that they denote are non-identity and identity between two individuals.

Appealingly simple though this view is, the data in Section 2 present it with several (in my view) insurmountable problems. First, *different* and *same* often combine with complements that do not appear to denote individuals. Two such complements occur in (45).

(45) a. The final result may end up **different** than anyone imagined it to be.
b. The place looks **the same** as it looked a half century ago.

Exactly which individuals would be denoted by the phrases *than anyone imagined it to be* and *as it looked a half century ago* is not at all clear. A further problem is that the gap in (45b) occurs in a position that cannot ordinarily be occupied by an individual-denoting term (cf. **Lou looked George the last time I saw him*), preventing a straightforward analysis of the complement in terms of the iota operator.

Second, the modification possibilities of *different* and *same* are not easily accommodated by this view. Non-identity and identity between two individuals, at least as represented in (43) and (44), are not relations that can hold to varying extents, but the modifiers of *different* and *same* appear to specify just such an extent.

(46) a. My new car is {much, a great deal, little} **different** than my previous one (was).
b. My new car is {almost, nearly, not quite, just about} **the same** as my previous one (was).

In (46), *much*, *little*, *almost*, *just about*, etc. provide some specification of the extent of the similarity or difference between my new car and my previous one. Without further elaboration, the meanings in (43) and (44) provide no way of understanding the semantic contribution of these modifiers.

A third problem is that sentences of the form *a is no different than b* should invariably be false when *a* and *b* denote distinct individuals. Given the proper context, however, they need not be taken as such. Consider, for example, the passages in (47).

(47) a. <u>People are really no **different** than computers</u>. We take input (our perception), react, process input, and retain memory.
b. Humans are animals, and <u>in this respect we are no **different** from the</u> <u>rest</u>: we are bodies, with brains, and a world to interact with.

Surely the individuals denoted by *people* and *computers* in (47a), and by *we* and *the rest* in (47b), are distinct individuals, but it would nonetheless be inappropriate for a listener to reject the sentences as false on these grounds.

Finally, this view of *different* and *same* posits a simple binary opposition between the two. Such a position leaves no room to relate these to *like*, leaving it a mystery why the three should pattern as closely as they do. It also provides no account for why *different* and *like* should enter into any logical relations. To see that they do, consider the valid equivalences in (48).

(48) a. Oranges are more **different** from pears than apples are. ⇔ Apples are more **like** pears than oranges are.
b. English is more **different** from ASL than it is from Spanish. ⇔ English is more **like** Spanish than it is like ASL.

Generally, a sentence of the form *a is more different from b than a is from c* is true just in case the corresponding sentence *a is more like c than a is like b* is also true. This suggests that there should be some close relation between the meanings of *different* and *like*, but from the one given in (43) for *different*, it's not clear what this relation would be.

I conclude, then, that there are many uses of *different* and *same* that simply cannot be characterized as relations between individuals.

3.2 Comparison of (sets of) degrees

The next possibility to consider is that comparisons of similarity and difference constitute comparisons between degrees, or sets of degrees.

3.2.1 *Background*

The notion of degree that is relevant here comes from an approach to the semantics of gradability and scalar comparison that has been pursued in Seuren (1973), Cresswell (1976), von Stechow (1984a,b), Seuren (1984), Rullman (1995), Kennedy (1999), Heim (2000), Kennedy & McNally (2005), and many other works. The guiding intuition behind this approach is that gradable adjectives such as *tall* or *wide* are associated semantically with measurable concepts, e.g. "length". Such measurable concepts are formalized in terms of scales, where a scale is a linearly ordered set of points, or degrees. The term "degree" is meant to capture the intuition that each point on the scale represents a different degree to which the measurable concept can be realized. For instance, the scale illustrated in (49) serves as a formalization of the concept "length", where the degree d_k represents a larger measure of length than either of the degrees d_j or d_i, by virtue of its being ordered ahead of them on the scale.

(49) LENGTH: $\varnothing$———d_i————d_j————d_k————>∞

Gradable adjectives are then taken to locate individuals along their associated scales, so that they generally denote relations between degrees and individuals. The gradable adjectives *tall* and *wide*, for instance, denote the relations in (50).

(50) a. ***tall*** $= \lambda d_d.\lambda x_e.x$ is tall to (at least) degree d
b. ***wide*** $= \lambda d_d.\lambda x_e.x$ is wide to (at least) degree d

The scalar comparison heads *more/-er*, *less*, and *as* in turn denote relations between degrees, or sets of degrees. One version of the latter view (see Heim 2000) assumes the "at least"-denotations for gradable adjectives given in (50), and assigns as the meaning of *more/-er* the proper subset relation between two sets of degrees.

(51) ***more/-er*** $= \lambda P_{\langle d,t\rangle}.\lambda Q_{\langle d,t\rangle}.P \subset Q$

The first argument of *more/-er* (P) is provided by its clausal complement, which is interpreted as a set of degrees. The other argument (Q) is provided by the matrix

clause, which occurs within the scope of *more*/*-er* in the logical representation of a scalar comparison; it too is interpreted as a set of degrees.

To see how these assumptions come together in the analysis of a scalar comparison, consider (52a), which receives the logical representation in (52b).

(52) a. The door is **taller** than it is wide.
b. ***-er***$(\lambda d_d.$***the-door-is-d-wide***$)(\lambda d_d.$***the-door-is-d-tall***$)$
c. $\{d$: the door is at least d-wide$\} \subset \{d$: the door is at least d-tall$\}$

(53) LENGTH: ∅——————————————————>∞
DOOR'S HEIGHT: ——————————] = $\{d$: the door is at least d-tall$\}$
DOOR'S WIDTH: —————] = $\{d$: the door is at least d-wide$\}$

The comparison head *-er* takes scope over its matrix clause in (52b); the latter denotes the set of degrees representing the door's height. The other argument is provided by the denotation of the clausal complement *than it is wide*, which is also a set of degrees, this time representing the door's width. The example is true just in case the second set is a subset of the first; as shown in (53), this corresponds to just those cases where the door's height is greater than its width.

Under this view, clausal subdeletion complements are in some sense most "transparent" semantically, since their degree-sized gaps are an accurate reflection of their interpretation as sets of degrees. The interpretation of complements exhibiting larger gaps, as in (54a), requires some amount of divergence from what is present in the overt syntax; note that the interpretation of the gradable adjective *tall* enters into the logical representation (54b) twice, though it appears overtly only once in (54a).

(54) a. John is **taller** than Bill is.
b. ***-er***$(\lambda d_d.$***Bill-is-d-tall***$)(\lambda d_{\mathrm{d}}.$***John-is-d-tall***$)$
c. $\{d$: Bill is at least d-tall$\} \subset \{d$: John is at least d-tall$\}$

(55) LENGTH: ∅——————————————————>∞
JOHN'S HEIGHT: ——————————] = $\{d$: John is at least d-tall$\}$
BILL'S HEIGHT: —————] = $\{d$: Bill is at least d-tall$\}$

The mismatch between the syntactic form of (54a) and the logical representation in (54b) is typically resolved by the postulation of some process of syntactic reduction (e.g. ellipsis) or semantic reconstruction.

3.2.2 *Evaluation*

Given the numerous parallels between scalar comparisons and those of similarity and difference that were identified in Section 2, it is certainly plausible that the latter should also constitute comparisons between sets of degrees. *Different*, *same*, and *like* would

then denote relations between sets of degrees, and their clausal complements would in turn denote sets of degrees. There are, however, certain revealing differences between the two types of comparison. These differences ultimately argue against extending a degree-based semantics to comparisons of similarity and difference.

First, perhaps the most salient difference between the two types of comparison is that *different*, *same*, and *like* do not combine with gradable adjectives, unlike their scalar counterparts *more*/*-er*, *less*, and *as*.

(56) a. Barry is **stronger** now than he used to be.
b. John is **less intelligent** than I imagined he would be.
c. I'm as **tall** now as I was when I was in college.

(57) a. Barry is (*strong) **different** (*strong) now than he used to be.
b. John is (*intelligent) **the same** (*intelligent) as I imagined he would be.
c. I'm (*tall) **like** (*tall) I was when I was in college.[6]

It is the **boldface** gradable adjectives in (56) that are ultimately responsible for introducing degrees into the semantics of scalar comparisons. It is thus not immediately clear how degrees would enter into the semantics of *different*, *same*, and *like*.

A possible response to this objection would be that the difference illustrated in (56) and (57) merely reflects the different ways in which gradable adjective meanings are introduced into the semantics of the two types of comparison. Specifically, while such meanings are introduced into the semantics of scalar comparisons by grammatical elements, it may be the utterance context that is ultimately responsible for introducing such meanings into the semantics of comparisons of similarity and difference. Perhaps the context provides the meaning of the adjective *tall* when it is height that is being discussed, so that when uttered in such a context, the sentence *I am different now than I used to be* asserts that the height I possess now is not identical to the height I used to possess. When what is under discussion is my weight, the context would provide the meaning of *heavy*, and so forth. Problems persist even for this refined view, however. The inability of *different*, *same*, and *like* to occur with subdeletion complements (see Section 2.2.2) remains mysterious, given that such complements denote sets of degrees. Why wouldn't (58a) be acceptable when what is under discussion is the extent to which the various books of the Bible hold one's interest?

(58) a. *Deuteronomy is **different** than the other books are interesting.
b. *This place is **the same** as it was beautiful a half century ago.
c. *Ringo is a lot **like** I am happy.

6. Note that the version of (57c) in which *tall* precedes *like* is grammatical under an appositive interpretation of *like* and its clausal complement.

Also left unexplained is the fact that comparisons of similarity and difference cannot function as answers to degree questions, unlike scalar comparisons.

(59) How tall is Bill?
–5 feet 7 inches.
–Taller than I expected him to be.
–As tall as he was the last time you asked that question.
*–Different than I expected him to be.
*–The same as I expected him to be.
*–Like I thought he would be.

Surely an utterance context in which an answer is desired for the question *How tall is Bill?* would be one in which the meaning of *tall* is available. But then, if the comparisons of similarity and difference in (59) provide information about the degree to which Bill is tall, just as the scalar comparisons do, it's not clear what prevents them from serving as felicitous answers.

I conclude, then, that despite the many parallels between scalar comparisons and those of similarity and difference, the degree-based semantics appropriate for the former should not be extended to the latter.

3.3 Comparison of sets of properties

In the remainder of this paper, I will develop the view that comparisons of similarity and difference constitute comparisons between sets of properties, so that at least some uses of *different*, *same*, and *like* denote relations between sets of properties. Under this view, the sentence *I am different now than I used to be* asserts that there is some difference between the properties that I used to possess and those that I now possess, i.e. that these two sets of properties are non-identical. The sentence *I am the same now as I used to be* makes the opposite assertion, namely that there is no difference between the properties that I used to possess and those that I now possess (i.e. set identity). Finally, the sentence *I am still* (*much*) *like I used to be* asserts that there is (much) overlap between the properties that I used to possess and those that I currently possess (i.e. non-empty set intersection). Some initial justification for such an approach comes from examples like the following ones, which demonstrate the relevance of properties when evaluating comparisons of similarity and difference.

(60) a. But in regards to how my character in *Hope Floats* is **different** than I am, he's very calm and secure … I am not secure in that way.

b. I was almost **the same** person as I am now: gloomy, thoughtful, unhappy in groups, always reading in the back seat of cars.

c. Apples are **like** oranges in that they are round, edible, have seeds, and so forth.

In each example in (60), a list of properties is provided in support of a preceding comparison of similarity or difference. In (60c), the assertion that apples are like oranges is supported with the observation that the two kinds of fruit share several properties, namely those of being round, edible, and seeded. Similarly, in (60a), the speaker supports his assertion that his character in the movie *Hope Floats* is different than he himself is by pointing out that only the character possesses the property of being secure. That this difference exists between the actor and his character ensures that the sets of properties possessed by the two are not identical. Observe as well that in response to *I am different now than I used to be* or *I am still much like I used to be*, a listener could legitimately respond with *How so?* or *In what way*(*s*)*?*, where what is asked for are some properties that either distinguish between or unite the speaker's current state and his previous state.

An appealing feature of this view is that the previously observed differences between scalar comparisons and comparisons of similarity and difference follow immediately. *Different*, *same*, and *like* do not combine with gradable adjectives because they do not compare sets of degrees. There is thus no need for them to combine with degree-introducing expressions. Relatedly, subdeletion complements are not attested in comparisons of similarity and difference because these unambiguously denote sets of degrees, not sets of properties. Recalling the generalization identified in Section 2.2.2, the claim here is that the proper analogue of (61) amongst scalar comparisons is not (62a), despite the superficial similarity in the size of their gaps, but rather (62b), the subdeletion case.

(61) John isn't much **different** than I thought he would be.

(62) a. John is **taller** than Bill is.
b. The desk is **taller** than it is wide.

In both (61) and (62b), the nature of the gap most accurately correlates with the interpretation of the clausal complement as a whole; in the former, the property-sized gap in *than I thought he would be* reflects the complement's interpretation as a set of properties, while in the latter, the degree-sized gap in *than it is wide* reflects the complement's interpretation as a set of degrees. Finally, comparisons of similarity and difference do not form felicitous answers to degree questions because they provide information about properties, not degrees. Of course, such comparisons function perfectly well as answers to property questions.

(63) How did the band sound?
–**Different** than I expected them to.
–**The same** as they did the last time I saw them.
–**Like** they always do … polished but uninspired.

The above considerations should suffice to establish the initial plausibility of this approach to comparisons of similarity and difference. In the next section, I turn to its formalization.

4. Semantics for *different*, *same*, and *like*

In this section, I develop a formal semantic analysis of comparisons of similarity and difference based upon the notion that these constitute comparisons between sets of properties. Section 4.1 presents the basic semantic properties of *different*, *same*, and *like* and the constructions into which they enter. I also discuss the role of contextual restrictions in the interpretation of comparisons of similarity and difference. The approach outlined there is extended in Section 4.2 to accommodate the modification facts seen earlier. Section 4.3 briefly addresses the possibility of *de re*/*de dicto* interpretations for the clausal complements of *different*, *same*, and *like*. Two sets of facts that will not figure in this section concern the licensing of NPIs and the impossibility of downward monotone expressions in the complements of *different*, *same*, and *like*; I postpone further discussion of these facts until Section 5.

In what follows, I will only consider predicative uses of comparisons of similarity and difference. Their adverbial uses should not pose any additional complications, if adverbs are taken to denote properties of events. The proper analysis of their attributive uses suffers from the same uncertainties that pervade the literature on attributive scalar comparisons (see, e.g. Bresnan 1973; Heim 1985; Lerner & Pinkal 1995; Beil 1997; Heim 2000; Kennedy & Merchant 2000; Sharvit & Stateva 2002).[7] Similarly, there is very little consensus on the proper analysis of nominal complements in scalar comparisons (see, e.g. Bresnan 1973; Hankamer 1973; Hoeksema 1983; Heim 1985; Lerner & Pinkal 1995; Kennedy 1999; Lechner 2001); what is at stake is whether some or all of these complements should be taken as base-generated nominals, or as (sometimes massively) reduced forms of clausal versions. Since one's answer to this question carries

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7. A reviewer questions whether NP-internal occurrences of *same* and *different* as in (4b) and (5b) in fact quantify over properties, suggesting that they rather "express sameness/difference among entities". However, modification facts support the view that at least some NP-internal uses of *same* and *different* are amenable to the property-comparison analysis developed here.

(i) These days, the Macworld conference attracts a <u>much</u> different audience than it did in the past.

(ii) I was <u>almost</u> the same person as I am now: gloomy, thoughtful, unhappy in groups, always reading in the back seat of cars.

(It should be noted that convincing examples of property-comparing NP-internal uses of *same* seem to be limited to predicative nominals; I have not yet found any clear examples of such uses in non-predicative NPs.) Note further that a distinction between property-comparing and individual-comparing NP-internal uses of *same* and *different* might parallel the distinction between attributive and amount scalar comparisons illustrated below:

(iii) John read a longer book than Bill did. (attributive)

(iv) John read more books than Bill did. (amount)

significant implications for the resulting semantic analysis of nominal complements; I will here focus solely on clausal complements. Though all of these issues must eventually be addressed with respect to comparisons of similarity and difference, to do so here would distract attention from my primary goal, which is an investigation of their core semantic properties.

4.1 Basic semantic properties of comparisons of similarity and difference

My central claim is that many uses of *different*, *same*, and *like* are best understood as denoting relations between sets of properties. What are these relations? In the case of *different* and *same*, it seems reasonable to follow previous work in assuming these to express non-identity and identity. Two sets X and Y are non-identical ($X \neq Y$) just in case $\exists P[\neg(P \in X \leftrightarrow P \in Y)]$; that is, just in case there is some element that belongs to exactly one of the two sets. X and Y are identical ($X = Y$) just in case there is no such element, i.e. just in case $\forall P[P \in X \leftrightarrow P \in Y]$. The meanings of *different* and *same* can therefore be formulated as in (64) and (65).[8]

(64) ***different*** $= \lambda X.\lambda Y.\exists P[\neg(P \in X \leftrightarrow P \in Y)]$
(65) ***same*** $= \lambda X.\lambda Y.\forall P[P \in X \leftrightarrow P \in Y]$

As for *like*, I take it to denote the relation of non-empty set intersection, where X and Y possess a non-empty intersection ($X \cap Y \neq \varnothing$) whenever $\exists P[P \in X \,\&\, P \in Y]$. This yields the meaning for *like* in (66).

(66) ***like*** $= \lambda X.\lambda Y.\exists P[P \in X \,\&\, P \in Y]$

It remains to be specified how these meanings for *different*, *same*, and *like* relate to the interpretations of their complements and the clauses in which they occur. Here, I borrow some techniques from the analysis of scalar comparisons presented in Section 3.2. Clausal complements of *different*, *same*, and *like* are interpreted as sets of properties (just as their counterparts in scalar comparisons are interpreted as sets of degrees). Perhaps the simplest way to achieve this result is to assume, following Chomsky (1977) and much subsequent work, that the property-sized gaps in these complements result

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8. I adopt the following notational conventions:

(i) x and y are individual variables (type e).
(ii) P and Q are variables over properties (type $\langle s,\langle e,t\rangle\rangle$).
(iii) X, Y, and Z are variables over sets of properties (type $\langle\langle s,\langle e,t\rangle\rangle,t\rangle$).
(iv) p is a variable over propositions (type $\langle s,t\rangle$).
(v) w and w' are possible world variables (type s).

Until the discussion of *de re*/*de dicto* ambiguities in Section 4.3, I ignore intensions.

from wh-movement of a null operator, the semantic function of which is to return the set of properties that satisfy the open sentence with which it combines. That such movement is involved in the derivation of these complements is supported by the island-sensitive nature of the gap noted in Section 2.2.1.

(67) a. Stanford seems [**different** [than Op_i it used to be t_i]].
b. Stanford looks [**the same** [as Op_i it looked t_i five years ago]].
c. Palo Alto is [**like** [Op_i I remember it (being t_i)]].

Different, *same*, and *like* find one of their two arguments in the denotations of their complements. Their second argument comes from the denotations of their matrix clauses, which occur within the logical scope of *different*, *same*, and *like*; these too are interpreted as sets of properties.

In (68)–(70), I show the logical representations (b) and truth conditions (c) that this analysis assigns to the examples in (67).

(68) a. Stanford seems **different** than it used to be.
b. ***different*(λP.Stanford-used-to-be-P)(λP.Stanford-seems-P)**
c. $\exists P[\neg(P \in \{Q\text{: Stanford used to be } Q\} \leftrightarrow P \in \{Q\text{: Stanford seems } Q\})]$

(69) a. Stanford looks **the same** as it looked five years ago.
b. ***same*(λP.Stanford-looked-P-five-years-ago)(λP.Stanford-looks-P)**
c. $\forall P[P \in \{Q\text{: Stanford looked } Q \text{ five years ago}\} \leftrightarrow P \in \{Q\text{: Stanford looks } Q\}]$

(70) a. Palo Alto is **like** I remember it (being).
b. ***like*(λP.I-remember-Palo-Alto-being-P)(λP.Palo-Alto-is-P)**
c. $\exists P[P \in \{Q\text{: I remember Palo Alto being } Q\} \ \&\ P \in \{Q\text{: Palo Alto is } Q\}]$

Observe that in (68b), *different* takes logical scope over its matrix clause, which denotes the set of properties that Stanford seems to (currently) possess. The other argument to *different* is provided by the denotation of its clausal complement *than it used to be*, which corresponds to the set of properties that Stanford used to possess. The example is true just in case (68c) holds; that is, just in case there is some property that Stanford used to possess but does not seem to currently possess, or vice versa. As we noted earlier in connection with (60), such a property in some sense constitutes a difference between Stanford's past state and its current state. (69) and (70) proceed similarly, save for the relations expressed by *same* and *like* and the sets of properties that they combine with. Example (70a) is true just in case there is some property that I remember Palo Alto to possess and that Palo Alto does in fact possess; such a property constitutes a similarity between my recollection of Palo Alto and its actual state. Example (69a) is true just in case every property that characterizes Stanford's appearance from five years ago also characterizes its current appearance, and vice versa; here, what is required is maximal similarity between its current appearance and its appearance from five years ago.

At this point, a valid objection to the meanings just formulated for *different* and *same* is that they apparently predict examples like the following ones to always be false (see also the discussion of the examples in (47)).

(71) a. I'm **the same** as I used to be.
b. I'm no **different** than I used to be.

(Assume for the moment that *no* in (71b) simply functions as sentential negation.) After all, there must surely be some difference between the properties that I used to possess and those that I currently possess; at the very least, I am older at this moment than I've ever been before. Yet (71a) and (71b) assert that these sets are identical. How, then, can they ever be judged as true?

The answer to this question is in fact rather simple: the quantification over properties that *different*, *same*, and *like* perform must be restricted to only those properties that are contextually relevant. Such contextual restrictions are familiar from quantification over individuals; they ensure that sentences like *Everyone is taller than me* and *The table is too big to fit through the door* are not necessarily false or undefined, respectively. Their presence here can be signaled overtly with phrases like *in these ways* or *in that respect*:

(72) a. In that respect, humans are no **different** than quantum semi-conductor circuits.
b. In many ways, I'm still **the same** person as I was before.
c. With respect to their taste, oranges are a lot **like** tangerines.

The effects of these contextual restrictions can be formalized by assuming that every utterance context delimits a set of contextually relevant properties *C*, and that the set-theoretic relations expressed by *different*, *same*, and *like* are only required to hold between the contextually relevant portions of the sets provided to them as arguments. This is shown in (73)–(75); in each case, the (a)- and (b)-formulations are equivalent.

(73) a. ***different*** $= \lambda X.\lambda Y.\exists P[P \in C \,\&\, \neg(P \in X \leftrightarrow P \in Y)]$
b. ***different*** $= \lambda X.\lambda Y.\exists P[\neg(P \in X \cap C \leftrightarrow P \in Y \cap C)]$

(74) a. ***same*** $= \lambda X.\lambda Y.\forall P[P \in C \rightarrow (P \in X \leftrightarrow P \in Y)]$
b. ***same*** $= \lambda X.\lambda Y.\forall P[P \in X \cap C \leftrightarrow P \in Y \cap C]$

(75) a. ***like*** $= \lambda X.\lambda Y.\exists P[P \in C \,\&\, (P \in X \,\&\, P \in Y)]$
b. ***like*** $= \lambda X.\lambda Y.\exists P[P \in X \cap C \,\&\, P \in Y \cap C]$

Examples (71a) and (71b) will then be true in some context just in case the set of contextually relevant properties that I used to possess is identical to the set of contextually relevant properties that I currently possess; this will be possible whenever the original

arguments to *same* are not disjoint sets. (I generally will not represent the contribution of *C* explicitly.)[9]

Before moving on to the modification facts surrounding *different*, *same*, and *like*, I should point out that this analysis bears some resemblance to Nunberg's (1984) analysis of *same*. Nunberg was concerned with the observation that sentences involving *same* (as well as *different*, though he does not discuss these) sometimes permit a type reading, in addition to the expected token reading, so that (76) can be true even if Enzo and I are not co-owners of any particular automobile, so long as we both own cars of the same make, model, and (perhaps) year.

(76) Enzo owns **the same** car as I do.

Nunberg suggests that what is relevant here is that the car that I own and the car that Enzo owns possess identical sets of contextually-relevant properties. However, he formalizes this suggestion in a quite different way than I have chosen here. Following Keenan (1982), he chooses to eliminate individuals as the primitive elements in a semantic model, replacing them with properties; individuals are then defined as sets of properties. He further assumes that an utterance context may restrict the set of properties represented in a model, so that in certain contexts, the expressions *the car that I own* and *the car that Enzo owns* will literally possess identical denotations, despite their corresponding to distinct real-world entities; this will be so whenever the properties that distinguish between them are not present in the model. Assertions involving *same* are ultimately taken to be assertions of identity between individuals; however, the notion of individual that is employed allows one model-theoretic individual to correspond to many real-world entities, predicting that (76) may be true in certain contexts even if Enzo and I do not actually stand in mutual ownership of any automobile. Nunberg's analysis thus presents an interesting hybrid of the individual-based approaches to *different* and *same* listed in Section 3.1 and the property-based approach developed here.

Lasersohn (2000) observes that Nunberg's analysis encounters an "effability" problem with examples like the following one.

(77) I own a Ford Falcon. **The same** car is owned by Enzo.

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9. A reviewer rightly observes that the analysis developed in this section does not account for the following difference between *same* and *like:*

(i) Stanford looks {the same as, like} it used to look.
(ii) Stanford looks {?*the same as, like} Paris used to look.

The reviewer suggests that constructions involving *same*, but not *like*, must obey a "same-subject" constraint. Further research is necessary in order to determine whether this constraint holds across a larger set of examples, and if so, what its source is.

Suppose I am the sole owner of one Ford Falcon, and Enzo is the sole owner of another. Then, the property of being owned by Enzo is one that distinguishes between the car that I own and the car that Enzo owns. In order to refer to these as the same car in (77), it must be the case that this property is not represented in the model. But then, what do we take as the denotation for the phrase *is owned by Enzo*? It would appear that there is no denotation for it at all, and yet, (77) is perfectly felicitous. Note that the analysis developed here does not suffer from this problem. Under this analysis, what the context restricts is the domain of the quantification over properties performed by *different*, *same*, and *like*, not the domain of properties itself. Assuming that the general approach to type readings pursued by Nunberg is correct, (77) can be true for the same reason that (78) can be.

(78) Everyone is **taller** than Bill.

For (78) to be true, it must be the case that Bill is excluded from the domain of individuals that *everyone* quantifies over, yet this does not prevent us from elsewhere referring to Bill.

4.2 Modifiers

4.2.1 *Modifiers of* different *and* like

Recall from Section 2.3.1 that *different* and *like* occur with the modifiers *much*, *a lot*, *a great deal*, *no*(*thing*), (negative polarity) *any*(*thing*), and *little*, a feature shared by scalar comparisons of inequality. Informally, these modifiers can be described as providing some measure of the amount of similarity or difference that holds between the items of comparison. Outside of the realm of comparison, one also finds these phrases occurring in existential noun phrases, such as those in (79).

(79) a. There is still {much, a lot, a great deal} (of) work left to be done.
b. There are {no, not any} problems left to be solved.
c. There is little hope of an early settlement in Microsoft's legal dispute with the European Commission.

The meanings given in (64) and (66) make clear the sense in which assertions involving *different* and *like* are assertions of existence; in each case, what is required for such an assertion to hold is that there exist (or, in the case of *no*(*thing*) and *little*, not exist) some number of properties of the relevant sort. It is thus unsurprising to find such parallels between *different* and *like* and existential noun phrases (see Seuren 1973 and von Stechow 1984a for analyses of scalar comparisons of inequality as existentials).

Still, something additional must be said in order to account for these facts. As currently formulated, the meanings for *different* and *like* do not permit them to combine with any modifiers; each is specified to take only two arguments, and yields a closed sentence upon saturation. Let us suppose that *different* and *like* do not always introduce

existential quantification themselves, but may alternatively combine with their arguments to yield sets of properties, as in (80) and (81).

(80) ***different*** $= \lambda X.\lambda Y.\lambda P[\neg(P \in X \leftrightarrow P \in Y)]$
(81) ***like*** $= \lambda X.\lambda Y.\lambda P[P \in X \,\&\, P \in Y]$

Then, for any sets of properties X and Y, ***different***$(X)(Y)$ and ***like***$(X)(Y)$ will also denote sets of properties, the former being the set of all properties that distinguish between X and Y, and the latter being the set of all properties that belong to both X and Y. The modifiers of *different* and *like* can then be interpreted as cardinality predicates over these sets.

(82) ***much*** $= \lambda X.|X| > n$ (similarly for *a lot* and *a great deal*)
(83) ***no***(***thing***) $= \lambda X.|X| = 0$
(84) ***any***(***thing***) $= \lambda X.|X| > 0$
(85) ***little*** $= \lambda X.|X| < m$

The denotations of "positive" modifiers like *much*, *a lot*, and *a great deal* require that there be sufficiently many properties in the sets with which they combine; exactly how many properties counts as sufficient is entirely vague and context dependent. The "negative" modifiers *no*(*thing*) and *little*, on the other hand, require that their sets be sufficiently small. With *little*, the exact nature of this requirement is again vague and set by the context, while *no*(*thing*) imposes the stronger requirement that its set be empty (i.e. that there not exist any members). Finally, the NPI *any*(*thing*) requires that its set be non-empty; this follows the well-established treatment of NPI *any* as a (narrow scope) existential.

Some illustrative examples follow.

(86) a. Stanford seems much **different** than it used to be.
b. ***much***(***different***(λP.***Stanford-used-to-be-P***)(λP.***Stanford-seems-P***))
c. $|X| > n$, where
$X = \{P\colon \neg\, (P \in \{Q\colon \text{Stanford used to be } Q\} \leftrightarrow P \in \{Q\colon \text{Stanford seems } Q\})\}$

(87) a. Palo Alto is nothing **like** I remember it (being).
b. ***nothing***(***like***(λP.***I-remember-Palo-Alto-being-P***)(λP.***Palo-Alto-is-P***))
c. $|X| = 0$, where
$X = \{P\colon P \in \{Q\colon \text{I remember Palo Alto being } Q\} \,\&\, P \in \{Q\colon \text{Palo Alto is } Q\}\}$

(88) a. I'm not any **different** than I used to be.
b. ***not***(***any***(***different***(λP.***I-used-to-be-P***)(λP.***I-am-P***)))
c. $\neg|X| > 0$, where $X = \{P\colon \neg(P \in \{Q\colon \text{I used to be } Q\} \leftrightarrow P \in \{Q\colon \text{I am } Q\})\}$

The semantic contributions of these modifiers thus receive a uniform treatment, with the only variation across their meanings found in the cardinality requirement that each imposes.

What, then, of cases where no modifier is present? I assume that such sentences are true just in case the set of properties returned by *different* or *like* is non-empty. In effect, this is no different than assuming that the existentially-quantified meanings for *different* and *like* in (64) and (66) exist alongside the versions in (80) and (81), perhaps via existential closure of the latter meanings. This ensures that the sentences *Stanford seems different than it used to be* and *Palo Alto is like I remember it* (*being*) still receive the truth conditions given in (68c) and (70c).

4.2.2 *Modifiers of* same

Recall next from Section 2.3.2 that *same* occurs with such modifiers as *nearly*, *almost*, *roughly*, (*not*) *quite*, and *just about*, a feature shared by scalar equative comparisons. Outside of the realm of comparison, these modifiers also occur in universal noun phrases, as in (89).

(89) a. {Nearly, almost, roughly, just about} everyone that you meet in Santa Cruz has a tattoo.

b. I'm sure that not quite everyone would agree with that statement.

The meaning in (65) makes clear that *same* involves universal quantification over properties. It is thus unsurprising to find such parallels between *same* and universal noun phrases (see Seuren 1984 and Heim 2000 for analyses of scalar equative comparisons as involving universal quantification). Though I will not provide any further analysis of its modification properties here, I see no reason why an account of the universal noun phrases in (89) could not be extended to the analogous facts regarding *same*.[10]

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10. Two other modifiers worth mentioning are *exactly* and *just*, which appear with *same* and *like*.

(i) She looks {exactly, just} the same as she did before.
(ii) She looks {exactly, just} like she did before.

In both (i) and (ii), the presence of *exactly or just* seems to yield a stronger statement than what would result in their absence. Their semantic contributions differ across the two examples, however. When they occur with *like, exactly* and *just* have truth-conditional effects, so that (iii) is not contradictory; *exactly like* and *just like* are essentially synonymous with *same*.

(iii) She still looks like her twin sister, but she no longer looks {exactly, just} like her.

On the other hand, the oddness of (iv) suggests that *exactly* and *just* do not yield stricter truth conditions when they occur with *same*.

(iv) #She still looks the same as her twin sister, but she no longer looks {exactly, just} the same as her.

Such "non-truth-conditional" uses of *exactly* as in (iv) are discussed by Lasersohn (1999).

4.3 *De re/de dicto* ambiguities

Finally, recall the *de re/de dicto* ambiguities observed in Section 2.6 for comparisons of similarity and difference occurring in intensional contexts. Let me briefly sketch an analysis of these facts which closely follows proposals made in von Stechow (1984a) and Heim (2000) for scalar comparisons. I take declarative complement clauses (e.g. *that John sounded different than he did*) to denote propositions, or sets of possible worlds. Intensional verbs like *think*, *realize*, and *say* in turn denote (intensional) relations between individuals and propositions; the verb *think*, for instance, denotes the relation between an individual and a proposition that holds just in case the proposition is true in each of the worlds consistent with the individual's beliefs (below, $Acc_x(w)$ represents the set of worlds consistent with *x*'s beliefs in *w*).

(90) $\boldsymbol{think} = \lambda p.\lambda x.\lambda w.\forall w'[w' \in Acc_x(w) \rightarrow w' \in p]$

(91) a. Mary thinks that John sounded **different** than he did. (de dicto)
b. $\boldsymbol{think}_w\,(\lambda w'.\boldsymbol{different}_{w'}(\lambda P.\boldsymbol{J\text{-}sounded\text{-}P}_{w'})(\lambda P.\boldsymbol{J\text{-}sounded\text{-}P}_{w'}))(\boldsymbol{Mary}_w)$
c. $\forall w'[w' \in Acc_{\mathrm{m}}(w) \rightarrow$
$\exists P[\neg(P \in \{Q\text{: J sounded } Q \text{ in } w'\} \leftrightarrow P \in \{Q\text{: J sounded } Q \text{ in } w'\})]]$

The logical representation and truth conditions in (91b,c) correspond to the "contradictory" *de dicto* reading of (91a), where what is asserted is that in each of Mary's belief worlds, the set of properties that characterize the way John sounded in that world is not identical to itself. To derive the "mistaken" *de re* reading, I assume that the possible world variable occurring in the clausal complement's interpretation need not be locally bound by the proposition-forming lambda operator, and that when this variable goes unbound, it receives as its value the evaluation world of the entire sentence.

(92) a. Mary thinks that John sounded **different** than he did. (de re)
b. $\boldsymbol{think}_w(\lambda w'.\boldsymbol{different}_{w'}(\lambda P.\boldsymbol{J\text{-}sounded\text{-}P}_{w})(\lambda P.\boldsymbol{J\text{-}sounded\text{-}P}_{w'}))(\boldsymbol{Mary}_w)$
c. $\forall w'[w' \in Acc_m(w) \rightarrow$
$\exists P[\neg(P \in \{Q\text{: J sounded } Q \text{ in } w\} \leftrightarrow P \in \{Q\text{: J sounded } Q \text{ in } w'\})]]$

As shown in (92), the result is that the complement *than he did* (*sound*) denotes the set of properties that characterize the way John sounded in the evaluation world of the entire sentence (i.e. the actual world). The example is then true under its *de re* reading just in case this set is not identical to any of its correspondents in Mary's belief worlds: in other words, whenever Mary possesses an incorrect belief about the way John sounded.

5. Further issues

I'd like to now briefly discuss some outstanding issues for the approach to comparisons of similarity and difference developed here.

5.1 NPIs and downward monotone expressions in clausal complements

Two sets of facts that remain unaccounted for concern the licensing of NPIs and the impossibility of negation and other downward monotone expressions in the clausal complements of *different*, *same*, and *like*.

(93) a. I felt **different** than I ever had before.
b. Robin's been belting out those classic Cheap Trick tunes for a quarter-century and sounds **the same** as he ever did!
c. *I felt **like** I ever had before.

(94) a. *College is a lot **different** than I doubted it would be.
b. *I think that I feel **the same** as no one else does.
c. *Duncan looks a lot **like** I don't before my first cup of coffee.

It remains to be seen whether the analysis developed in Section 4 can be suitably extended to predict the facts illustrated in (93) and (94). It is worth noting that in the analyses of von Stechow (1984a) and Rullman (1995), the analogous facts regarding scalar comparisons ultimately derive from the same assumption, namely that the clausal complement of a scalar comparison denotes a unique maximal degree, rather than a set of degrees as in (51) (see the cited works for further details). Future research should also reveal whether a unified analysis of (93) and (94) is possible for comparisons of similarity and difference, and if so, whether such a unification is desirable.

5.2 Further modifiers of *different* and *like*

We have already seen that *different* and *like* occur with such modifiers as *much*, *no*(*thing*), and *little*, which elsewhere occur in scalar comparisons, but not with simple gradable adjectives. There are other modifiers that demonstrate a largely complementary distribution: these may occur with simple gradable adjectives, but are excluded from scalar comparisons. The class of such modifiers includes *very*, *extremely*, and *entirely*.

(95) a. LeBron is {very, extremely} tall.
c. My glass is entirely empty.

(96) a. *LeBron is {very, extremely} taller than I remembered him being.
c. *My glass is entirely emptier than yours.

These modifiers are permitted with *different* and *like* (Bresnan 1973: 278 fn. 4; Huddleston & Pullum 2002: sect. 13.5; see also Laca & Tasmowski 2003 on French *différent*).

(97) a. Domestic rats are very **different** than sewer rats.
b. Japanese baths are extremely **different** than those in North America.
c. "The Village" turns into a movie entirely **different** than you might expect.

(98) a. The Siberian polecat (Putorius eversmanni) is very **like** the European in size, color, and proportions.

b. Klaatu first appeared on the scene in 1976, and created quite a commotion in the music world because it sounded extremely **like** the Beatles.

It appears, then, that *different* and *like* simultaneously exhibit the modification possibilities seen in scalar comparisons as well as those demonstrated by simple gradable adjectives.

A related observation is that while scalar comparisons cannot themselves participate in further scalar comparison, constructions headed by *different* and *like* can. The examples in (48) already demonstrate this; further examples are provided below.

(99) *Chris is **more happier** (than Bill) than he was the last time I saw him.

(100) Apples are **different** from pears, but oranges are even **more different** from pears than apples (are).

(101) That is why the Navy is **more like** the zoo than it is like the Church.

A plausible explanation for the ungrammaticality of (99) is that there is no degree variable available for the higher occurrence of *more* to bind: the degree variable introduced by *happy* is already bound by the lower occurrence of *-er*, which itself does not introduce any degree variable.[11] If *very*, *extremely*, and *entirely* also bind degree variables, then this explanation immediately extends to the facts in (96).

As formulated here, the meanings for *different* and *like* make no reference to degrees either. The expectation is then that the examples in (97), (98), (100), and (101) should also be ungrammatical, since there are no degree variables available for (e.g.) *very* or *more* to bind. Something more must be said to account for these examples.

6. Conclusion

A major theme of this paper has been the parallelism that obtains between comparisons of similarity and difference and scalar comparisons. Not only did this parallelism guide the empirical investigation of constructions involving *different*, *same*, and *like* conducted in Section 2, but it also motivated many aspects of the semantic analysis of these constructions presented in Section 4. Nonetheless, certain differences between the two types of comparison have crept into the discussion throughout the paper. Some of these, such as the status of subdeletion complements, were argued in Section 3 to reflect a more

11. I follow Schwarzschild (2005) in taking measure phrase modifiers of scalar comparisons (e.g. much *more expensive*, two feet *taller*) to be predicates of scalar intervals (sets of degrees), rather than degrees.

fundamental difference between the sorts of objects that enter into the two comparisons: whereas scalar comparisons are comparisons between (sets of) degrees, comparisons of similarity and difference constitute comparisons between sets of properties. There are other differences, though, that point to a more complex view of comparisons of similarity and difference than the one presented here. In particular, the modification facts discussed in Sections 2.3 and 5.2 indicate that *different* and *like* somehow maintain dual existences as both comparison heads and ordinary gradable expressions. Another difference that points in this direction is the relatively simple morphosyntax of the heads of comparisons of similarity and difference. While there are certainly puzzles here, such as the categorial status of *like* (adjective, preposition, or both?) and the relation between *the* and *same*, one does not encounter difficulties of the sort seen in scalar comparisons, where the mode of morphosyntactic combination between *more*/*-er*, *less*, and *as* and their adjacent gradable adjectives is a point of perennial disagreement. Rather, *different*, *like*, and *same* exist as basic lexical items. However, their complementation possibilities simultaneously cross-classify them as the heads of comparative constructions, so in their morphosyntactic properties as well, *different*, *same*, and *like* resemble both comparison heads and ordinary gradable expressions. This double life has gone unexpressed in the analysis developed here, which treats them exclusively as comparison heads. It also makes *different*, *same*, and *like* potentially revealing windows into the structures and distinctions that should underlie a more general analysis of gradability and comparison: these come together here in a manner unattested in scalar comparisons and ordinary gradable expressions. Whatever the proper account of this dual nature may ultimately be, it should lead to not only a better understanding of constructions involving *different*, *same*, and *like*, but also of the syntax and semantics of gradability and comparison, broadly construed.

Acknowledgements

My thanks to David Beaver, Donka Farkas, Veerle van Geenhoven, Michela Ippolito, Angelika Kratzer, Bill Ladusaw, Jim McCloskey, Roger Schwarzschild, and three anonymous reviewers for their valuable comments and suggestions. Thanks also to the audiences at Paris (JET Adjectifs) and Stanford (S-TREND 2005). Any remaining errors are my responsibility alone. This material is based upon work supported under a National Science Foundation Graduate Research Fellowship.

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Characterizing superlative quantifiers

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The present paper develops a semantic analysis of superlative descriptions as a subclass of definite DPs: the definite determiner in superlatives (and not the superlative itself) is analyzed as the locus of the contextual restrictions. Evidence from presuppositions and from different dependent readings of superlatives supports the parallel between superlatives and definites. I also show that a distinction should be drawn between two types of contextual restriction: the context set of the definite and the frame of comparison of the superlative. The paper further discusses the role of focus in the comparative reading of superlatives in an array of constructions such as existential sentences and focused quantifiers such as *everybody, several X* and *many X*. Finally, I show that the hypotheses introduced are sufficient to explain the much debated "upstairs *de dicto*" reading (Heim 1999).

1. Superlatives: The absolute and the comparative

The study of superlatives has undergone a dramatic change in focus during the last two decades. Traditional grammarians were mostly interested in morpho-syntactic issues, such as relating comparative and superlative morphology; the taxonomy of superlatives as an "adjective class"; the relationship between superlatives and elatives—for example, in Latin and the Romance languages they share morphological expression: -*issimus* means both 'very X' and 'the X-est'—; etc. The contemporary approach to the formal analysis of superlatives, as developed from the mid-eighties, has been increasingly paying more attention to semantic issues, such as the readings of superlatives and the linguistic factors that determine them; the analysis of superlative morphemes as operators, susceptible of entering into scopal relations and sharing properties with other quantificational expressions; the role of contextual factors; etc.

The landmark study in the contemporary understanding of superlatives is without a doubt Szabolcsi (1986). Following an insight by Ross (1964), Szabolcsi observed that superlatives are ambiguous. The superlative description—syntactically, the superlative DP—*the highest mountain* in (1) may have two interpretations.

(1) John climbed the highest mountain.

The first reading is the one most generally and intuitively identified as "superlative": The description refers to a unique salient entity to which the property expressed by the adjective is attributed at the highest extent or degree. This reading is labeled the ABSOLUTE READING. With respect to (1), we understand that John climbed a mountain higher than any other contextually relevant mountain, for example Mount Everest. In other words, the superlative DP refers to a unique mountain that has the property of being high to the maximal degree. Szabolcsi identifies a second reading of (1), a COMPARATIVE READING, which prosodically requires a specific intonational pattern with a contrastive pitch/accent on *John*, and can be paraphrased as 'John climbed a mountain higher than the mountains climbed by anybody else'.

Szabolcsi made a significant (and correct) correlation between the emergence of the comparative reading and the presence of (contrastive) focus. As a matter of fact, for a given sentence *s* where a superlative description occurs, it appears that there will be as many comparative interpretations of *s* as constituents that can be contrastively focused, with the exception of the superlative DP itself. Nevertheless, it seems more accurate to talk about two basic readings—the absolute and the comparative—because the alleged comparative "readings" are all triggered by a single factor: the relevance of focus in computing the comparison class. Consider sentence (2):

(2) John gave Bill the longest book.

The sentence above has one absolute reading, namely 'John gave Bill a book longer than any other book' and two comparative readings. These readings depend on whether *John* or *Bill* are focused as follows (where $[\ldots]_F$ indicates that the constituent in brackets is focused):

(3) $[\text{John}]_F$ gave Bill the longest book.
'John gave Bill a book longer than the books that anybody else gave him'

(4) John gave$[\text{Bill}]_F$ the longest book.
'John gave Bill a book longer than the books that he gave anybody else'

Adverbial and/or non-argumental constituents also give rise to comparative interpretations:

(5) a. Susan ate the richest meal yesterday.
b. Bill placed the most expensive plant in his garden.

In addition to the absolute readings, we can understand (comparatively) with respect to (5a) that yesterday Susan ate a meal richer than the meals she ate any other day of the week (i.e. *yesterday* contrasts with other weekdays); with respect to (5b), the comparative reading based on *in his garden* contrasts this element with other potential contextually determined locations where he placed other plants (in his room, in the

basement, in the attic, etc). In other words, Bill placed in his garden a plant that was more expensive than the plants he placed in other locations.

In this paper, I will take this critical empirical fact as a point of departure and defend the idea that the two described readings are related to the context-dependent nature of superlative definite descriptions. This is a hypothesis that underlies several recent proposals on the semantics of superlatives, to different degrees, from Heim (1995, 1999) and Gutiérrez-Rexach (1996, 2006) to Farkas & Kiss (2000) and Sharvit & Stateva (2002). Nevertheless, there are substantial differences among these approaches, as a byproduct of the data under consideration and the specific theoretical proposals that are assumed or advocated. For example, Sharvit & Stateva propose treating the definite as a covert indefinite and also postulate the presence of an identity operator over possible worlds. Farkas & Kiss's account does not rely on syntactic movement operations, such as Quantifier Raising. Reasons of space prevent me from undertaking a more detailed comparison of these approaches. My view on these issues tries to stay close to lexically-based semantic composition and to several currently accepted points on the syntax of superlatives, focus and quantification. In general, my proposal on the semantics of superlatives is to be viewed as a natural extension of well-known properties of quantifiers and their contextual behavior, as also defended in Gutiérrez-Rexach (1996, 2006).[1]

The main goal of this paper is to show that the readings associated with superlatives are the compositional result of the combination of the meaning of definite determiners (understood as determiner functions restricted to a context set), the comparative operator *-est*, and the dynamics of context sets in discourse as they interact with focus interpretation. Assuming a model for the dynamic interpretation of syntactically analyzed LF-structures—see Gutiérrez-Rexach (2006) for a more detailed treatment of these issues—, it will be claimed that there are structural and "interface" constraints that also condition the availability of a context set. In sum, well-known factors related to context, focus, and the syntax/semantics interface conspire to produce the multiplicity of attested readings. If this is correct, we have a powerful argument for a simpler account of the semantics of comparatives and superlatives.

1. The basic assumptions in this paper were presented for the first time in Gutiérrez-Rexach (1996), within the framework of Discourse Representation Theory. An extended and developed version of that paper was presented at the 2003 LSA Meeting on the Semantics & Pragmatics interface (published as Gutiérrez-Rexach 2006). The ten year gap between the initial conception of the paper and its final published form in a widely distributed outlet was due to a variety of reasons, but also allowed for a refinement of some of the ideas contained in the paper. In the meantime, several authors have independently developed proposals that are very close in spirit to some of my ideas, especially Heim (1999) and Farkas & Kiss (2000).

2. The syntax of DPs and superlatives: Some problems

A majority of proposals for the syntax of superlatives defend analyses following the "DP hypothesis" (Abney 1987 and followers), in the sense that determiners head an independent DP projection, adjectives occupy structural positions within the DP and the superlative word or morpheme is associated with a degree projection (DegP).[2] A syntactic account of superlatives has to explain two main properties: on the one hand, superlatives such as *tallest, best, highest*, etc. have the syntactic status of adjectives while at the same time superlatives have a special status as an adjective subclass, given that superlative morphology or modification plays a role not only in their syntactic behavior but also in their semantic properties.

Since superlatives can only be formed of gradable adjectives (*highest, tallest* vs. **the most former*, **the most alleged*, etc.), gradable adjectives have been claimed to be encoded with the feature [+deg]. Checking this feature requires that gradable adjectives be generated or raise to degree projections. The nature and location of this degree projection and the relationship with superlative morphology has been the subject of debate. For some authors (Bowers 1975; Jackendoff 1977; Bhatt & Pancheva 2004), superlatives are generated as specifiers of the adjectival projection. For others, the superlative is generated as an independent head taking the AP as its complement (Abney 1987; Bowers 1987; Corver 1997).[3] The derivation of the surface order of superlatives raises several theoretical problems as well. For example, if one assumes that superlatives are specifiers and adjectives are heads, then raising of the adjective to incorporate into the superlative becomes problematic, since an X^{min} cannot incorporate into an X^{max}— cf. Chomsky's (1995) statement that morphology deals only with X^{min} categories and their features. Similarly, positing intermediate heads (Number, etc.) would lead to potential violations of the Head Movement Constraint, unless one develops a mechanism according to which certain heads are interveners and others are not, in the spirit of Rizzi's (1990) Relativized Minimality idea and ulterior developments.[4]

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2. For a brief overview of the different analyses proposed for the syntax of adjectives see Cabredo Hofherr (this volume).

3. If the superlative operator were a head taking NumP as its complement, its ulterior movement would be unavoidably restricted by the Head Movement Constraint. This is something that actually does not seem to be the case. An objection along these lines would also hold for Heim's (1999) analysis, in which the superlative adjective moves to a higher degree projection.

4. Others have postulated that adjectives are generated in independently-required functional projections such as [Spec,NumP] (cf. Crisma 1996). If we were to adopt this assumption and the adjective that combines with the superlative morpheme were to move above these projections, this would incorrectly predict that no adjective may precede the superlative:

A related problem is how superlative morphology is related to the modified noun, or to the AP-NP combination. No matter whether the superlative is analyzed as a specifier of the AP headed by the adjective or it is treated as an independent head taking the AP as its complement, the result would be that the superlative element would not c-command the noun; semantically, the associated operator would not have scope over the noun. Nevertheless, as we will see below, there is evidence that the superlative does indeed have scope over the AP-NP complex. We will assume that scope effects can be derived without movement of the superlative operator (contra Heim 1999, see Farkas & Kiss 2000 and Sharvit & Stateva 2002 for semantic arguments and Matushansky 2008 for syntactic arguments for this assumption). We will defend the hypothesis that the DP host (the superlative description itself) can (and must) move, but that the superlative operator is not required to do so.

3. Superlatives as definites

In this section, I will argue that superlative descriptions should be treated as definites, whose meaning is determined compositionally by two separate elements: the definite determiner (*the*) and the superlative operator (*-est*). The semantic contribution of definite determiners is fairly well understood, including some aspects of their more controversial presuppositional component. The latter includes obligatory familiarity and uniqueness presuppositions, and potentially related salience presuppositions—see von Heusinger & Egli (2001) and Roberts (2003) for recent analyses. On the other hand, the characterization of the superlative operator and, more significantly, of its associated presuppositions seems to be far more elusive.

To begin with, I will work with an extensional semantics of definites, as proposed in Generalized Quantifier Theory (Keenan & Westerståhl 1997; Peters & Westerståhl 2006). Determiners denote functions taking two arguments and mapping them to a truth value (i.e. they denote functions with Lindström's type ⟨1,1⟩). A definite determiner denotes a co-intersective function associating its arguments through an inclusion condition.[5]

(i) a. the next most successful bookstore in town
b. the alleged best student

5. **Intersective** determiners denote type ⟨1,1⟩ functions whose value at sets A, B just depends on $A \cap B$, the intersection of A and B, i.e. the set of objects that lie in both A and B.

(i) For **D** of type ⟨1,1⟩, **D** is *intersective*
iff for all sets A, B, X, Y if $A \cap B = X \cap Y$ then $\mathbf{D}(A)(B) = \mathbf{D}(X)(Y)$

Some co-intersective determiners in English are *all, each, every, almost/nearly all, not all, all but six, all but at most six, all but finitely many, every … but John*, as in *Every student but John came to the lecture*. Definite determiners (including demonstratives, possessives, etc.) are also co-intersective: *the, the ten, these, my,* etc.[6] Nevertheless, definites are different from universals in their inherent context-sensitivity: like demonstrative and interrogative determiners, they denote inherently restricted functions. Consider, for example, the following sentence:

(6) The green book is marked as being on sale.

The determination of the unique familiar (and salient) entity referred to by *the green book* critically relies on what is established by the preceding discourse or by accommodated information from the common ground. This contextual environment has to satisfy the requirement of allowing the participants in the conversation to retrieve or identify a set of books. For example, I may utter (6) while I point at a stack of books on a table inside a bookstore. Thus, the domain of quantification for *the* is restricted ('on table *x*') and *the* correctly picks a particular book on this stack. Only certain determiners have the requirement that their quantificational domain be restricted by the discourse context. This property is modeled in Generalized-Quantifier theory by adding a contextual parameter, in the sense that certain determiner functions are obligatorily restricted to a CONTEXT SET, as proposed by Westerståhl (1985, 1989)—cf. also von Fintel (1994) who uses the term resource-domain argument in an intensionalized version of Westerståhl's idea.[7]

Thus for an intersective **D**, **D**(A)(B) does not change when we replace A with X and B with Y as long as A has the same intersection with B as X has with Y. Some intersective determiners in English are *some, a/an, no, several, more than six, at least six, exactly six, fewer than six, at most six, between six and ten*, etc.

Co-intersective determiners denote functions whose value at a pair A, B of sets just depends on A – B, the set of objects in A not in B. Co-intersective determiners are those whose arguments are related by an inclusion condition.

(ii) For **D** of type ⟨1,1⟩, **D** is *co-intersective*
iff for all sets A,B,X,Y, if $A - B = X - Y$ then $\mathbf{D}(A)(B) = \mathbf{D}(X)(Y)$.

To verify that **all** is co-intersective, e.g. we have to verify that *All As are Bs* iff the set of As that are not Bs is empty, that is, $A - B = \varnothing$.

6. Impressionistically, the co-intersective determiners exhibit less internal structural diversity than the intersective ones. There are no unequivocal interrogative determiners that are co-intersective (Gutiérrez-Rexach 1997).

7. For E a universe of individuals, **D** a determiner function over E, and $A, B, C \subseteq E$, we say that $\mathbf{D}^C$ is the restriction of **D** to C iff $\mathbf{D}^C(A)(B)$ iff $\mathbf{D}(A \cap C)(B)$. The parameter C represents

In File Change Semantics and some variants of Discourse Representation Theory, indefinites and definites are treated as non-quantificational elements contributing variables to a Discourse Representation Structure (or a file card). Those variables are subject to several conditions of a semantic and pragmatic nature. The distinction between pure quantifiers and those contributing only restricted variables was aimed to capture the differences across determiner types related to discourse dynamics, such as discourse anaphora or quantificational variability (unselective binding effects). Generalized Quantifier Theory also took a dynamic slant in the nineties, and several versions of Dynamic Predicate Logic with generalized quantifiers were proposed that provided accounts of anaphora and unselective binding facts without giving up the uniformity of quantificational elements (cf. Chierchia 1995). At the same time, Discourse representation Theory evolved into a framework much closer to Generalized Quantifier Theory (van Eijck & Kamp 1997). Thus current versions of Discourse Representation Theory and Generalized Quantifier Theory (in its dynamic variants) represent inter-translatable versions. In Gutiérrez-Rexach (2006) a variant of Discourse Representation Theory with presuppositional updates (Kamp 2001a,b) is used. Here, for the sake of simplicity, I will stick with general dynamic notions (mostly, context sets) as implemented in a traditional Generalized Quantifier framework. Nevertheless, I believe that the two theories are inter-translatable and what can be said in one theory can be said in the other one without loss of generality.

4. The semantics of the superlative morpheme

Following Heim (1995, 1999), it can be proposed that the superlative morpheme *-est* (or its free or bound correlate in other languages) denotes a function that combines with a gradable property (a relation between individuals and degrees) and yields a property of individuals (a set). The restricted determiner *the* takes this property as its first argument. The semantics of *-est* is as in (7):

(7) $\text{-}\mathbf{est}(R)(x) = 1 \text{ iff } \exists d\ [R(d)(x)\ \&\ \forall y \neq x\ [\neg R(d)(y)]]$

The formula in (7) states that superlatives denote a binary function that is true of a gradable property (*R*) and an individual (*x*) if and only if there is a degree *d* such that *x* has the property *R* to *d* and no other individual has property *R* to that degree. For example -**est**(**tall**)(**John**)—corresponding to a sentence such as *John is the tallest*—is true if it is the case that there is a degree (height) such that John is tall to that degree

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the **context set** of the determiner function and restricts its first argument. The function denoted by the determiner *the* is: $\mathbf{the}_{sg}{}^{C}(A)(B) = 1 \text{ iff } (C \cap A) \subseteq B \text{ and } \mathrm{Card}(C \cap A) = 1$.

and no other individual is tall to that degree. An ancillary assumption that is required is that degree functions (the denotation of degree predicates) are monotonic: If an individual *x* has property *P* to degree *d*, then *x* has *P* to any degree that is less than or equal to *d* (see Sharvit & Stateva (2002) for discussion of the different predictions with respect to superlative scope derived from a monotonic and a non-monotonic theory of degrees).

The dynamic composition and management of context sets is responsible for well-known semantic effects affecting definite determiners. In other words, discourse dynamics conditions the composition of the context set restricting the definite determiner and triggers certain variability in the expected range of the "absolute" reading. Take example (1): we said that in the absolute reading the superlative description refers to Mount Everest (or the highest mountain in the world). Nevertheless, the entity referred to by the DP may vary depending on the preceding discourse and the relevant composition of the common ground—the conversational topic or set of questions under discussion, etc.—, the superlative description may well refer to the highest mountain in Europe, in the Alps, etc. More interestingly, the superlative DP need not refer to a unique entity and may have a dependent or bound interpretation. Farkas & Kiss (2000) call this type of reading the *dependent absolute reading*. Here I will generalize their idea to include all the instances of constructions giving rise to dependent-definite readings, not only those specifically considered by these authors. The existence of this range of variability is unsurprising and can be correctly attributed to the definite determiner and not to the superlative operator. Consider now the following discourse:

(8) Our assignment for Monday was to read three articles. I was only able to read the shortest one.

It seems clear that the discourse preceding the occurrence of the superlative description determines the composition of the context set of the definite determiner, and restricts the comparison class of the superlative. The superlative description *the shortest one* refers to an article that is maximally short among the three assigned that Monday. Thus, in (8) the relevant context set C for **the** is λx. **Article assigned for Monday** (x). Sometimes—as pointed out by a reviewer—determining the context set for the superlative requires reference to an associated kind. Consider (9):

(9) I was late to the OSU game. I was only able to buy the most expensive ticket.

Obviously, the most felicitous interpretation of (9) is the one where the superlative means 'the most expensive kind of ticket'. One way of deriving this interpretation would be to say that the proper context set would not be λx. **Sold at the OSU game** (x)—which would lead to the interpretation that I bought the single most expensive ticket—but rather λx. x **is an instance of KIND** (**Sold at the OSU game**). An alternative

that would not require accommodating kinds as part of the presuppositional content would be to say that the most expensive ticket would refer to an instance of a certain kind/class of tickets and that the context set restrict the determiner to tickets sold at an OSU game (not to kinds of tickets sold at that game). I believe that both alternatives give equivalent results in the end but differ in their assumptions about what can/has to be accommodated.

One could modify the characterization of -**est** in (7) above to include the restriction to a context set as follows:

(10) $\textbf{-est}(C)(R)(x) = 1$ iff $C(x)\ \&\ \exists d\ [R(d)(x)\ \&\ \forall y[C(y)\ \&\ y \neq x \rightarrow \neg R(d)(y)]]$

Heim (1995, 1999) and Gutiérrez-Rexach (1996) propose that the superlative has a resource domain argument in addition to the internal and external arguments. Heim's definition differs from the more neutral characterization of (10) in that she distinguishes a presuppositional and an assertive content in the superlative operator. The constraints that *x* (the external argument) must be an element of the context set and that C must be a subset of the left domain of R (the internal argument) are treated as presuppositions. Thus, instead of (10) we would have the following definition:

(11) $\textbf{-est}(C)(R)(x)$ has no truth value unless $C(x)\ \&\ \forall y[C(y) \rightarrow \exists d\ [R(d)(y)]]$;
when it has a truth value, it is true iff $\exists d\ [R(d)(x)\ \&\ \forall y[C(y)\ \&\ y \neq x \rightarrow \neg R(d)(y)]]$

Nevertheless, in this paper I want to argue that the contextual restriction of the determiner is independent of the content of the superlative and that a proper characterization would be along the following lines, with -**est** defined as in (7) above:

(12) $\textbf{-est}(R)(x) = 1$ iff $\exists d\ [R(d)(x)\ \&\ \forall y \neq x\ [\neg R(d)(y)]]$
$\textbf{the}^{C}(\textbf{-est}(R))(X) = 1$ iff $(C \cap (\textbf{-est}(R))) \subseteq X$ and $Card(C \cap (\textbf{-est}(R)) = 1$

In (12), contextual restriction (the resource-domain argument or context set) belongs to the definite determiner and crucially not to the superlative. Since context sets are normally associated to certain co-intersective determiners in the nominal domain, it would follow that the mechanism by which the superlative operator becomes restricted is indirect. This would also explain why the determiner heading the superlative description is a definite, and no other determiner can occupy that position:

(13) a. the best player
b. the two best players
c. *two best players
d. *many best players

Apparent exceptions are partitives and some indefinites:

(14) a. Two of the best players are not playing today.
b. A most welcome benefit of my position is that I don't need to compromise.

The partitive in (14a) is not really an exception, since the superlative description is actually the complement of the preposition *of*, and—as has been argued (Ladusaw 1981)—, only group denoting determiners—those denoting a principal filter (Szabolcsi 1997)—can occupy this position. The case of (14b) is more interesting, in that *most welcome* is not interpreted as a superlative: it functions as an elative or intensifying adjective, equivalent to *very* (see Rando & Napoli 1978).

5. The dependent reading

In order to support our hypothesis about the role of the definite determiner heading the superlative description, namely that it is the linguistic element responsible for contextual restriction, we have to find evidence showing parallels between superlatives and definites in general. As mentioned above, both regular definite descriptions and superlatives are restricted by resource-domain arguments or context sets. There is also additional evidence related to instances where the quantificational behavior of a superlative description patterns with other definites in its dependent uses within tripartite quantificational constructions. In the following examples, the definite description occurs in the nuclear scope of an adverb of quantification (the overt/covert instances related to the connectives *if*, *wherever* and *whenever*):

(15) a. If I skip a class, I get the lecture notes from a classmate.
b. Whenever I go to a restaurant, I order the soup of the day.

The meaning of (15a) is that for every/most class(es) under consideration, if the speaker skips a class, s/he gets the notes from a classmate. The definite description *the lecture notes* depends on context, but such dependence is not related to accommodated information from previous sentences. Rather, the definite co-varies with the situations under consideration (classes). The same applies to the definite DP *the soup of the day* in (15b), whose interpretation is dependent on the restaurant situations under consideration (for dependent and weak uses of definites see Poesio 1994; Carlson & Sussman 2005; and Büring 2001). A further subclass of dependent definites is the one that includes those that Webber (1978) called *class dependent definites*. In (16), the description *the peach* denotes (for each boy) a different instance of the 'peach' kind:

(16) Each boy gave a woman he knew the peach she wanted.

Superlative descriptions behave like definites in these: the presence of a superlative operator does not interfere with the dependent and/or weak interpretation of the definite. For example, the dependent interpretations of the superlative descriptions in (17) parallel those of (15) above:

(17) a. If I skip a class I ask *the best student* for her lecture notes.
b. Whenever I go to a dinner paid by my company, I order *the most expensive dessert*.

In (17a), the best student co-varies with each class-situation and in (17b) the most expensive dessert co-varies with each dinner.[8] In sum, in the examples in (17) there are as many different classes or dinners selected as situations considered in each sentence. Class dependent definites are also available with superlatives:[9]

(18) Each boy gave a woman he knew the most expensive present she wanted.

One possible account of why superlatives occurring in tripartite quantificational structures have the quantificational force of the definite would be to link this property to the matrix universal/generic quantifier, the one associated with atemporal *when/if*. The restriction of the definite determines the class of objects in the context set. Sentence (19) confirms this idea.

(19) If Mary goes to a conference, she buys her daughter the cutest toy.

The above sentence is interpreted as 'every time Mary goes to a conference, she buys her daughter a present cuter than any other present that she is able to find in that place/on that trip'. The "pure" absolute reading, namely 'If Mary goes to a conference, she buys her daughter a toy cuter than any other toy', is not possible. Obviously, the phenomenon we are considering connects to the phenomenon of bridging (Clark & Haviland 1977) or "associative" anaphora (Hawkins 1978). Consider (20):

(20) If Donald has the chance to see the bride, he reserves the longest kiss for her.

8. Notice that the non-dependent absolute reading of (17b)—according to which I order the same dessert every time I go to dinner under those specific circumstances—seems strongly dispreferred or even impossible.

9. A reviewer suggests that other lexical items such as *typical* may trigger a dependent reading. The adjective *typical* in (i) can be analyzed as a relational adjective (*typical of* y) and this property can also trigger a characteristic dependence of its own.

(i) Wherever I travel, I try to eat the most typical meal.

Nevertheless, the fact that an adjective is relational and dependent on context (cf. Mitchell 1986, Partee 1991) does not necessarily entail that this is the only or even the main trigger of the dependent reading of the superlative. The meaning of sentence (i) is that, in every place I visit, I eat a meal that is the most typical among those available. A very similar reading would arise even if we substitute a clearly non-relational adjective (such as *spicy*) for *typical*:

(ii) Wherever I travel, I try to eat the spiciest meal.

In (20) we have a case of double bridging or accommodation. On the one hand, the definite *the bride* associates with the context set λx. **At_wedding** y(x). In the nuclear scope (or second argument of the unselective quantifier associated with the conditional), *the longest kiss* is restricted to the set of kisses given at that wedding.

The dependent absolute reading of superlatives occurring in a tripartite quantificational structure with an overt or covert adverb of quantification is not circumscribed to those environments where a superlative occurs in the nuclear scope of the matrix quantifier. Superlatives occurring in the restriction of the quantificational element acting as a non-selective binder also have dependent absolute readings. Consider (21):

(21) a. If an employee gets the biggest pay raise, he usually is very happy.
b. If a lawyer wins the most civil cases, he usually gets the biggest pay raise.

In sentence (21a) the superlative occurs in the restriction of the first argument of the universal/generic quantifier. In (21b), there are superlatives in both the restriction and scope of the quantifier and both are interpreted as dependent superlatives.

Farkas & Kiss (2000) also observe that superlatives have dependent readings and they argue that these readings are a subtype of the absolute reading, and this explains why they label them *dependent absolute readings*:

(22) Every student climbed the highest mountain.

In (22), *the highest mountain* does not refer to a unique mountain. Rather, it selects—for every student under consideration—the highest among the mountains he climbed. Thus, the description might be referring to more than one mountain. Farkas & Kiss correctly determine that this reading of the sentence should be separated from the comparative reading, since here we are not comparing one student with others, but associating each student with one mountain. Gutiérrez-Rexach (2006) generalizes Farkas & Kiss' term to also apply to other cases where a dependence arises, such as the one we have just considered with respect to generic/universal unselective quantifiers. We believe that this is the right step to take in that—if we do so—we can characterize this dependence as an instance of well-known dependencies of quantifiers in nominal and modal scopal domains. On the other hand, even if one assumes Farkas & Kiss's Primacy Condition, which amounts to the property that superlatives have to be c-commanded by a licensing operator, it is clear that this type of generalized dependence requires something else, in addition to syntactic c-command.

Going back to dependent superlatives in tripartite structures, we should now explore the exact nature of the dependence: Are we talking about an instance of unselective binding or about something else? I believe that the first option is clearly not correct, since that would actually be against the core content of the superlative. Consider (23):

(23) When I go to a movie theater, I try to get a seat in the least crowded area.

An unselectively-bound reading of the superlative definite description in (23) would entail that I get more than one seat (violating the uniqueness requirement of the superlative):

(24) Gen_{xyz}[I go to movie theater(x)][I get seat(y) in least crowded area(z)]

In general, definites contrast with indefinites in not giving raise to pure unselective readings. Compare (25a) and (25b). Sentence (25b) lacks a reading with a generic/universal interpretation of the definite DPs, whereas (25a) is the paradigmatic example showing that indefinites do get this interpretation.

(25) a. If a farmer owns a donkey he beats it.
b. If the farmer owns the donkey, he beats it.

Sentence (25b) only has the felicitous reading in which the uniqueness and familiarity presuppositions of the definite descriptions are satisfied: We are talking about a particular (unique and familiar) farmer who beats the donkey he owns. This explains why the unselective (variable) reading is not possible. On the other hand, the definites in (26) do not seem to be referring to a unique entity:

(26) At a wedding if the groom refuses to kiss the bride it looks really odd.

This exceptional presuppositional behavior is only apparent. Rather, it can be claimed that the uniqueness condition is satisfied only with respect to the different weddings under consideration. The universal/generic matrix quantifier binds the indefinite *a wedding*, and the definites are interpreted as unique with respect to each wedding under consideration: For every wedding *x*, if the groom *y at wedding x* refuses to kiss the bride at wedding *x* , it looks really odd. The context set variable of the definite permits establishing the intended dependence between weddings and groom/bride pairs. In this respect, it can be claimed that a dependent reading emerges when the context set has a functional nature: It associates grooms/brides with weddings.

The same reasoning seems to work rather well in analyzing the dependent absolute reading of superlatives. Building the context set for a determiner requires identifying the relevant set of discourse entities that restrict the determiner function. Let us go back to the discourse in (19), repeated here as (27):

(27) If Mary goes to a conference, she buys her daughter the cutest toy.

The protasis of the conditional sentence makes the discourse referent *c* (the conference) available and, by accommodation, the location of *c* (l_c). How do we get to the proper context set for *the* in *the cutest toy*? The context set cannot be a set of locations, but rather an appropriate set of objects in that location. Following Cresswell (1996), Gutiérrez-Rexach (1996, 2006) introduces an ACCOMMODATION FUNCTION.

This function f_x maps a world *w* and an object *x* to the set of objects *y* standing in a contextually relevant relation *R* with *x* in *w*:

(28) $f_x(w)(x)(R) = \lambda y[R(w)(x)(y)]$

For instance, a potential accommodation function that can be inferred from the first sentence of the discourse in (27) would be $f_m(w)(l_c)(\mathbf{In})$ (= $\lambda y[\mathbf{In}(w)(l_c)(y)]$), namely the set of objects *y* in the location of the conference in *w* (the set of objects that stand in the **In** relation with the conference location in *w*). Another potential accommodation function would be $f_m(w)(l_c)(\mathbf{Purchasable})$ (= $\lambda y[\mathbf{Purchasable}(w)(l_c)(y)]$), i.e. the set of objects that can be purchased in the city where the conference is located, etc. This function could be accessed once the verb in the second sentence is processed. In (27) a place variable *p* over spatial locations would be quantified over. The relevant accommodation function is $f_p(w)(p)(R)$, where *R* is in this case the spatial part-whole relation. This function is accommodated in the nuclear scope and the relevant set of entities *y* becomes accessible as the context set for the definite determiner. We will not pursue here in detail the issue of how such sets are retrieved, with the exception of what is relevant for the determination of their content (see Roberts 2006 for a discussion of retrievability and how it determines the use of descriptions).

Although in the unselective-binding constructions examples discussed above the dependent absolute reading is highly preferred (or the only one possible), there are cases in which the superlative description is not dependent on the matrix quantifier and only the absolute reading is available. Certain adjectives and modifiers can contribute to create this independence effect:

(29) a. If Harold happens to be alone with the bride, he gives her the longest kiss you could ever imagine.
b. Whenever Harold attends a wedding, he gets the most outlandish ideas.

In these examples, the superlative is not dependent on the matrix c-commanding universal generic operator, so it is not the case that kisses or ideas necessarily vary with the situation under consideration. Rather, we are talking about a kiss or idea that exceeds such a norm or standard. In (29a) this norm is determined by the propositional expression *you could ever imagine*, and in (29b) by the adjective *outlandish*, i.e. out of the norm or standard for ideas relevant to a given situation.[10] The determination of the pertinent norm or standard is clearly dependent on the situation type

10. A reviewer points out that *the most outlandish* in (29b) might in fact not be a true superlative (Rando & Napoli 1978). My intuitions are that getting the superlative reading or not may be actually related to the possibility of associating the relevant norm to a situation where it would be appropriate. When this is not the case, the description is interpreted as an elative or extreme-degree expression.

which is part of the discourse topic (weddings), but it does not create a functional dependence with the superlative (i.e. it is not part of the context set of the determiner). These data can be explained if it is assumed that these modifiers are associated with an intensional operator and that the superlative becomes dependent on this latter operator. In this respect, it seems accurate to call this subtype of the dependent absolute reading an *intensional absolute reading.*[11]

6. Nominal dependence

In this section, an important subclass of dependent absolute readings will be considered in more detail. In this case the quantifier that creates the dependence is not an overt or covert adverb of quantification as in the cases noticed by Farkas & Kiss (2000) but instead the definite determiner depends on a c-commanding nominal quantifier that induces co-variation. For example, in (30) the choice of the relevant (best) book varies with the librarian under consideration:

(30) Every librarian chose the best book.

Thus, one of the readings of (30) is that for every librarian *x*, *x* chose the book that was the best among those contextually associated to *x*, for example the best book in his library according to his personal opinion, etc. What is of significance here is that every librarian is associated with a book of his choice, so we are dealing with a genuine case of the dependent absolute reading. In sum, the dependent absolute reading is possible for (30), in addition to the standard absolute reading ('They all chose the same book'). The intensional dependent reading is also possible: Every librarian chose the best book according to a contextually determined intensional norm or criterion, which can give

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11. The dependent absolute reading is also suspended by other factors extrinsic to the superlative DP. Given that context sets are dynamically created, blocking effects are expected. The simple concatenation of sentences in a discourse semantically amounts to the dynamic conjunction of the sentences in that discourse. When sentences are connected by connectives that are not dynamic, such as disjunction *(either…or…)* (Kamp & Reyle 1993; Chierchia 1995), a potential context set created by an accommodation function in the first disjunct is not accessible to a superlative description in the second disjunct. This is exactly what happens in the following examples, where the context set for *the* in *the most expensive present* (ia) cannot be the set of objects that (can be) purchased wherever Lisa goes on vacation. Similarly, the set of mountains that function as a context set for the definite determiner in (ib) is not associated to the location where Jacob's parents live.

(i) a. Either Lisa goes on vacation or she buys the most expensive present for her daughter.
b. Either Jacob visits his parents or he climbs the highest mountain.

rise to an associated nominal dependence (if the norms vary with the librarians). The standard (extensional) dependent reading relies on the accommodation of a function associating books and librarians. More evidence confirming this connection comes from the fact that possessive determiners occurring inside the superlative DP force the dependent absolute reading:

(31) a. Every librarian chose the best book from his new-arrivals list.
b. Most athletes pursue their highest dream at the peak of their careers.

Farkas & Kiss (2000) establish a link between dependent readings of superlatives and the dependence of indefinites c-commanded by other quantifiers, such as *a mountain* in (32):

(32) Every student climbed a mountain.

In this case the value of the variable introduced by the indefinite co-varies with the variable bound by the universal. Farkas & Kiss (2000)—following Farkas (1997)—also notice that definites have the same type of dependent readings, as (33) shows:

(33) Every child ate the cookie first.

In (33) the noun phrase *the cookie* is interpreted as co-varying with the child. Farkas & Kiss (2000) claim that definites in a structural environment where they are in the scope of a universal can only have a dependent reading when the context provides "some way of associating the elements in the domain of the universal with a unique entity that may serve as value to the definite or, alternatively, such an association [is] accommodatable in the discourse". They assume that this restriction is connected to the uniqueness/familiarity requirement associated with definites. Farkas and Kiss extend this analysis to dependent superlatives. They remain neutral as to whether the dependency is a matter of structure, a matter of referential index interpretation (Farkas 1997), or can be handled by other standard semantic mechanisms that have been proposed.

Relating dependent readings to the familiarity and uniqueness presuppositions of definites is controversial. One could say that those presuppositions are suspended, given that the superlative DP does not refer to a unique entity. This seems to be clearly the case for nominal dependents, where in a given world *w*, there is clearly more than one entity satisfying the NP denotation that makes the description true. On the other hand, it is also true that for modal dependents (those in tripartite *if/when* clauses) it could be argued that for each world/situation under consideration there is a unique entity referred to by the superlative.

Our analysis of dependent readings of superlatives attempts to unify the dependence that emerges in tripartite structures of a modal/unselective nature, and the one we are considering here, where the superlative depends on a nominal quantifier. As we have argued above, the behavior of definites and indefinites differs in a substantial

fashion especially in unselective-binding environments. Thus, the dependence of indefinites and definites cannot be always attributed to the same factors. Furthermore, if this dependence were completely parallel, the fact that superlative descriptions are headed by definites would be left unaccounted for. What I want to argue in this section is that the existence of dependent absolute readings in a variety of environments suggests a treatment of these interpretations as a variety of functional readings (Engdahl 1986; Chierchia 1993). These readings have been identified as triggered by certain quantifiers in interrogative constructions (34a), in copular sentences such as (34b), and with certain indefinites (34c):

(34) a. Who does every man love? (answer: his mother)
b. The (only) woman that every man loves is his mother.
c. Every man loves a (certain) woman. (his mother)

Several recent influential analyses of these phenomena have involved different versions of functional dependence, represented via choice functions (Jacobson 1994; Reinhart 1997; Winter 1997; Kratzer 1998; etc.). A similar treatment can be envisioned for dependent absolute superlatives. In the previous section, we argued that the property of being restricted by a context was precisely what gave definite determiners the ability to create the intended dependence. Such context sets may involve the accommodation of functional information. For example, (35) in addition to the standard absolute reading has a dependent absolute reading:

(35) Every student read the longest book.

The dependent reading is only felicitous if there is a way of associating students and books in a functional fashion, For example, we are talking about books in the student's reading list. Thus, the relevant context set for *the* in (35) includes information from the restriction of the c-commanding universal quantifier and a relation linking such restriction to the descriptive content of the superlative description, for example, that we are talking about books in the reading list for a History class. Such a relation has to be either explicitly given or retrievable from the common ground (Roberts 2006). The present characterization entails, for (35), an association between students and books that can be formalized using choice functions. This association—we claim—differs from the one taking place for indefinite descriptions in that for indefinites the value of the function is the referent of the indefinite description. For the definite determiner heading the superlative description, on the other hand, the value of the function is the context set.

The choice-function analysis of the dependent (narrow scope) reading of the indefinite *a professor* in sentence (36a) is (36b):

(36) a. Every student admires a professor.
b. $\exists f[CH(f) \wedge \forall x[student(x) \rightarrow admires(x,f(professor))]]$

(36b) states that there is a choice function f such that for every student x, x admires f(*professor*), i.e. the professor selected by the choice function f (the value of the function f applied to the set denoted by *professor* is the individual selected from that set). If we were to apply the exact same translation to superlative descriptions, we would obtain (37) for sentence (36):

(37) $\exists f[CH(f) \wedge \forall x[student(x) \rightarrow read(x, f(longest\ book))]]$

The problem with (37) is that *longest book* is not a set. Rather, it is a unique individual (a singleton set), so (37) would give the wrong truth conditions for (35). Additionally, the choice function should not be doing the job of the superlative operator (or of the determiner *the* for that matter). The relevant function seems to be one associating individuals in the restriction of the c-commanding determiner and context sets. The value of a given x at the function f is the relevant context set for the determiner. The correct logical form for (35) would be (38):

(38) $\exists f[CH(f) \wedge \forall x[student(x) \rightarrow read(x, the^{f(x)}(est(long\ book)))]]$

Thus, according to (38), sentence (35) is true iff there is a choice function f such that for every student x under consideration, x read the longest book in $f(x)$. The choice function is a function from individuals to sets (of type $\langle e,\langle e,t\rangle\rangle$). For example, as we have already stated, for (35) above f could be **reading list**(x), a function that maps a given student x to x's reading list. Then, -**est**(**long book**) selects the longest book in **reading list**(x).

7. Framing the comparison: The non-intersectivity of superlatives

Heim (1995, 1999) claims that the context set restricts the superlative operator. The members of the context set are degree properties. Her proposal combines the contribution of two elements that here are claimed to be syntactically and semantically different: the definite determiner and the superlative operator. Whether one combines the semantics of *the* and *-est* or separates it is not a trivial matter. This difference leads to two alternative views on how to treat the frame of the comparison induced by the superlative operator. On Heim's view, which can be labeled as the *identity theory*, the implicit restriction of the definite determiner and the restriction associated with the superlative operator constituting the frame of the comparison are not distinguished. For example, in Heim's (1999) proposal the contextually determined domain restriction is a parameter of the superlative operator and the members of this context set are degree properties. Alternatively, one can differentiate the contribution of the definite determiner and the superlative operator, given that they arguably are syntactically and semantically distinct. From this viewpoint, which is

the one advocated in Gutiérrez-Rexach (2006), there is a division of labor between the context set that restricts the definite determiner and the frame of the comparison, mirroring the differential roles of the definite determiner and the superlative operator. In this section we will address several empirical and theoretical consequences of this distinction.

Context-set variables denoting sets of individuals (i.e. of type ⟨*e*,*t*⟩) only restrict determiners, as originally proposed by Westerståhl (1985) (see discussion in Section 3). Superlative operators are restricted by what we will be calling the COMPARISON FRAME. This frame may be covert or overt—an expression denotes the frame of the comparison—, and is of a different type: Comparison frames are sets of degree properties (they are of type ⟨*d*,⟨*d*,*t*⟩⟩, where *d* is the type of degrees). Syntactically, the PP acting as the frame of the comparison adjoins to the maximal NP projection dominated by the superlative operator. In this respect, as an NP modifier, it restricts the NP and the domain of the superlative operator. Consider the following discourse:

(39) I saw Larry at the football game. He had bought the most expensive ticket in area B.

The adjunct PP *in area B* provides the frame of the comparison. It restricts the domain of the superlative operator to degree properties of objects (tickets) in area B:

(40) -**est**(**expensive**(x) & **ticket**(x) & **in areaB**(x))

In example (39) without the PP, the context set of the determiner is retrieved from the set of potential locations at the stadium where the football game is played by accommodating the function f_p(w)(p)(**In**) and adding the associated set of objects as the context set: We are talking about tickets sold at that stadium. The frame of comparison restricts the denotation of the superlative further to the set of degree properties of the tickets sold in area B. Syntactically, the modifier restricts the NP, not the superlative. In other words, it is a "lower" modifier and does not have scope over the determiner. As such, it provides the frame of the comparison by restricting the degree properties under consideration.

This property is related to another property of superlatives, noted by Keenan & Faltz (1985): the fact that superlatives do not combine with intersecting adjectives. We say that an adjective is intersecting if the following holds (Keenan & Faltz 1985):

(41) An adjective function *f* is *intersecting* iff, for all properties B, *f*(B) = B & *f*(E), where E is the denotation of the predicate *exists*.

For example, the adjective *female* is intersecting. A female judge is a judge and a female individual:

(42) **female judge**(x) iff **judge**(x) & **female**(x)

Other intersecting adjectives are nationality adjectives (*German, Albanian*, etc), color adjectives (*blue, red*), shape adjectives (*rectangular*) and relational adjectives (*nuclear, electric*). For example, a *red balloon* is a red entity and a balloon. Similarly, if *x* satisfies the property **German car**(*x*) it also satisfies **German**(*x*) and **car**(*x*). On the other hand, scalar or degree adjectives in general are non-intersecting. Consider for example the adjective *big*. We might describe an entity as a *big butterfly*, but this does not entail that such an entity is *big* in general. We are just saying that it is big for a butterfly (big according to the size standards for butterflies).

Keenan and Faltz observe that restricting adjectives lack comparative and intensive forms: "phrases like *a more Albanian student than Bill* or *a very Albanian student* seem uninterpretable unless we read into *Albanian* a content richer than the usual meaning of *Albanian* as simply an indication of nationality membership" (p.132). Superlatives follow this generalization too. Superlatives cannot combine with intersecting adjectives:

(43) a. *This power station is the most nuclear in the state.
     b. *Honda is the most Japanese brand.

If the adjective's meaning is shifted to denote a related qualitative (non-intersecting) property, then it will be allowed to occur in superlative constructions. For example, the nationality adjective *Mexican* can be understood as expressing the quality or qualities that are quintessential to being Mexican. This interpretation of *Mexican* is non-intersecting, and sentences such as (44) are not only possible but very common:

(44) Salma Hayek is the most Mexican of the top-tier movie actresses.

What is of interest too, and follows reasonably from what we have just stated, is that superlatives are non-intersecting modifiers (Heim 1999). An adjective with superlative morphology cannot be interpreted intersectively. For example, the superlative description *the tallest mountain* is interpreted as (45a) and cannot be interpreted as (45b):

(45) a. the unique *x* such that *x* is the tallest among mountains.
     b. the unique *x* such that *x* is the tallest and *x* is a mountain.

The non-intersectivity of superlatives critically interacts with their context dependence. Consider the following discourse:

(46) I bought my daughter ten Christmas presents. She only liked the most expensive doll.

Depending on whether we interpret the superlative as intersecting or non-intersecting, very different truth conditions obtain. Consider a model in which, of the ten presents I bought my daughter, three were dolls and seven were books. The most expensive present was a book. Then, if we interpret the superlative as intersecting, it would refer

to the unique *x* in the context set C of the determiner such that *x* is the most expensive item in C and *x* is a doll. Since the most expensive item is a book, the superlative description would fail to refer. Nevertheless, it is clear that the only possible reading of (46) is one in which the superlative picks the most expensive among the three dolls. Thus, superlatives cannot have a non-intersecting interpretation.

There are several possible ways of analyzing the restricting/non-restricting distinction and its impact on the grammar of adjectives and/or superlatives. Heim (1999) derives it as the result of the obligatory raising of the superlative operator above the NP (to the clause level). Nevertheless, as we mentioned before, Heim's claim that superlatives may have DP-external interpretations has been called into question from a variety of perspectives—cf. also the last section of this paper. We analyze the non-intersectivity of superlatives as an instance of the general behavior of non-intersecting modifiers, so the account that we will develop here does not need to recourse to independent assumptions about superlatives (as e.g. in Heim 1999).

Keenan & Faltz (1985) propose an algebraic account. For Higginbotham (1985) and Ludlow (1989), non-intersective adjectives such as *big* have an extra argument that associates them with an "implicit comparison class" (in Ludlow's words). Then, the description *a big butterfly* would be adequate in that we understand that the extra argument of *big* is saturated by a an implicit term expressing the comparison class (big for butterflies, or similarly-sized entities).

An extension of this account to superlatives seems rather straightforward. The implicit comparison class of the non-restricting (scalar) adjective becomes part of the comparison frame of the superlative. Consider now the following discourses:

(47) a. My uncle Rufus owns several horses. The fastest is Ringo.
b. My uncle Rufus owns several horses. The fastest among the Arabians is Ringo.

The determiner *the* heading the superlative description in (47a,b) is restricted by the same context set: the horses owned by uncle Rufus (λx[**Horse**(x) & **Owned by**(x, Rufus)]). In (47a) there is no explicit term restricting the comparison class, so the comparison frame is understood to be the one immediately derived from the context set: the set of degree properties of the horses owned by uncle Rufus. In (47b) the presence of the PP adjunct triggers the introduction of a condition restricting the comparison frame of the superlative. This amounts to the effect that the comparison is first restricted to the individuals in the context set of the higher definite determiner and afterwards it is further restricted by the comparison frame.[12] The consequence of

12. A reviewer points out that there is more than one *the* in (47b): *the fastest… the Arabians*. Then, it would be possible to assume that the restriction to uncle Rufus' horses is associated

this stepwise process is that it is not possible that the individual satisfying the superlative definite description is a member of the set of Arabian horses but not a member of the set of horses owned by Rufus. It also follows that the degrees of speed that we are comparing are those relative to horses (and horse racing). It would be impossible to interpret the superlative description *the fastest* in (47) as the fastest (compared to cars). Furthermore, the modifier *among the Arabians* restricts the comparison class to degrees of speed among Arabian horses (which might be faster than other horses), etc.

8. The presuppositions of superlatives

Recall that in Section 4 above we introduced the presuppositions triggered by the superlative operator in Heim's (1999) theory:

(48) -**est**(C)(R)(x) has no truth value unless $C(x) \& \forall y[C(y) \rightarrow \exists d\ [R(d)(y)]]$

The first presupposition (membership of *x* in the context set) is being treated in this paper as part of the asserted content of the determiner plus superlative combination. The second one would be a necessary but probably not sufficient requirement. What seems to be presupposed is not only left-domain inclusion (all other objects in the context set have the property R to a degree), but a stronger requirement that we will be calling DISTINCTIVENESS. The degree properties "separate" or distinguish individuals in the context set from each other (not all individuals have the property to the same degree):

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with the second *the*, and it becomes part of the comparison frame, with the context set unspecified. This would mean that (47b) would be ambiguous, with the two sentences being truth-conditionally identical, which seems redundant. Nevertheless, I think that how to accommodate information from previous context is not an optional matter. In other words, the two definite determiners in (47b) are not equal candidates with respect to contextual restriction. It is always the topmost or hierarchically superior determiner the one that is interpreted as restricted by the information derived from the previous discourse. In the terms of Discourse Representation Theory (Kamp & Reyle 1993), the discourse referent introduced in the preceding discourse fragment would be equated with (or part of) the most accessible context set: the topmost one. For example, in (i) the context set **children in the school playground**(*x*) would restrict the determiner heading the description *the members of the junior class*:

(i) Some of the children were playing in the school's playground. The members of the junior class were the most active.

If a context set derived from the preceding discourse were free to be accommodated as part of the most embedded context set or as a restriction of the superlative operator, we would get the non-available readings in which the most active members of the junior class were not in the playground or all of the junior class was playing.

(49) -**est**(C)(R)(x) has no truth value unless
$\forall y[C(y) \rightarrow [\exists d\ [R(d)(y)]\ \&\ \neg\forall z[z \neq y \rightarrow R(d)(z)]]]$

Groenendijk, Stokhof & Veltman (1995, 1996) clearly had a similar view in mind when they observed that a special type of presupposition has to be accommodated in order to derive the proper context set for examples similar to those in (50), namely, that all the objects under consideration are not equally expensive.

(50) I bought thirty books last month. I shouldn't have bought the most expensive one.

The context set of the definite determiner in (50) is the set of books that I bought last month. If both Heim and Groenendijk & Stokhof are correct, the superlative operator would have to satisfy two presuppositions: (i) books have the relevant gradable property (being expensive to a degree), as proposed in Heim's (1999) account, and (ii) not all books are equally expensive. A reviewer points out that if all the books were equally expensive the superlative operator would just return the empty set. Thus, the distinctiveness ingredient would be part of the asserted content of the superlative. Nevertheless, I think this property is better viewed as part of the presuppositional content, as a precondition that the preceding discourse has to satisfy for the successful processing of a discourse fragment containing a superlative. If this precondition is not satisfied, we have an instance of presupposition failure (Kamp 2001a,b). For example, a speaker would not utter (50) if s/he had knowledge that all books are equally expensive. Within the theory advocated here, the relevant distinctiveness presupposition is not a presupposition of the determiner and the associated context set, since definite determiners do not have distinctiveness presuppositions. For example, the definite description in (51) does not presuppose that the property **president of France** applies to other individuals (quite the contrary), or that there are other presidents, etc.

(51) The president of France visited England.

Rather, distinctiveness is a presupposition of the superlative operator and it would also entail that the set of degree properties under consideration is not empty (existence presupposition). Since what the superlative operator asserts is that one degree is highest with respect to a property and an individual, the fact that not all individuals have such property to the same degree has to be presupposed too. We believe that the difference in intuitions with respect to the distinctiveness requirement—whether the sentence would be false or undefined—is a reflection of the long-standing philosophical debate on the content (presuppositions) of definite descriptions and of presupposing terms in general. For some authors (the Russellians), if this content is not satisfied, the expression becomes false, and for others (the Strawsonians or true presuppositionalists), the expression would fail to refer. Within a modern account of presuppositions, such as that advocated by Kamp (2001a,b) and used in Gutiérrez-Rexach's (2006) analysis of superlatives, such presuppositions are viewed as discourse preconditions.

The requirement that the degree properties of the members of the context set are non-identical is a precondition for the proper use of a superlative description. Notice that this distinctiveness requirement, as defined in (49) above, is an intrinsically weak precondition precluding complete identity (all individuals do not have the relevant property to the same degree). Stronger requirements requiring specific partitions of the context set are clearly not part of the presuppositional content of the operator, but may be triggered by other discourse elements. For example, in (52) the property *d*-**close to the exit door** partitions the seats in the context set according to an arrangement that is standard for movie theaters.

(52) When we go to the movies, Bill always tries to get the closest seat to the exit door.

If the presuppositions of superlative operators are such as we are describing here, one could be led to the conclusion that they would have a presuppositional behavior similar but not identical to that of definites in general (existence and uniqueness), and a theory collapsing the definite and superlative component in one element would look attractive again. It would be interesting to consider whether this connection can be pursued even further and to what extent some of the presuppositions of the superlative operator are inherited from the determiner or, alternatively, are completely independent in nature. Definites have been argued to satisfy familiarity and salience presuppositions (Roberts 2003; von Heusinger & Egli 2001). I believe that it can be argued that superlatives also have familiarity and salience presuppositions. More concretely, determining the proper implicit comparison class requires satisfying familiarity and salience presuppositions on degrees. Consider (53):

(53) Peter drove the fastest car.

The property of being fast or, more precisely, an associated degree of speed (*fast for cars*) is required as a precondition for establishing the comparison class of the superlative in (53). What needs to be presupposed is that the objects under consideration (those in the context set of the determiner) are fast to some degree (i.e. fast to a degree exceeding the contextually provided standard of speed). This would be the existence requirement captured as part of definition (49). The distinctiveness presupposition—not all cars are equally fast—would come on top of this precondition. Nevertheless, we are not done yet with respect to the preconditions to be satisfied by the comparison frame. Notice that the relevant comparison class or frame is not only dependent on the NP and its modifiers but also has to be familiar in the common ground. Consider for example (54):

(54) Michael Schumacher drove the fastest car.

The existence and distinctiveness requirements on the comparison frame would impose the precondition that cars are fast to a degree and that they are not equally fast.

Nevertheless, the relevant speed degrees to be considered are those that are relevant or, more properly, familiar for the situation under consideration. Since Michael Schumacher was a well-known Formula 1 champion, the degrees considered with respect to the property denoted by *fast* are those commensurate with that type of race car, and different from those considered for (53).

There is also the requirement that the degree properties under consideration have to be sufficiently salient as applied to the individuals in the context set. The following sentence seems infelicitous in an out-of-the-blue context because race cars are not normally compared by their colors (or the depth of their colors):

(55) Michael Schumacher drove the reddest car.

Nevertheless, given the context provided in brackets in (56), the continuation that follows is perfectly acceptable.

(56) [Ferrari is concerned that the red color of their cars becomes difficult to see under poor weather conditions so they decided to test cars with several shades of red.]
Finally, Schumacher drove the reddest car.

The relevant comparison class has to be sufficiently salient in order to be identifiable. Nevertheless, the salience presupposition of the definite determiner and the salience precondition for superlatives seem to still be different. In the former case, salience applies to individuals (in the resource domain). For the superlative operator, what has to be salient is a property of degrees.

More recently, Stateva (2005) has argued that giving the proper truth-conditions for plural superlatives requires a reassessment of their presuppositional content, given that Heim's (1999) assumptions do not seem to predict the correct readings (see also Matushansky & Ruys 2006 for more details on the semantics of plural superlatives).

9. Focus after movement

Let us go back to the observation made by Szabolcsi (1986) and mentioned in the first section: Depending on which element of the sentence is focused, different "comparative" readings may arise, as the contrast in (57) illustrates.

(57) a. [Juan]$_F$ bought Luisa the most expensive present ⇒
'Juan bought Luisa a present more expensive than the presents that anybody else bought Luisa'
b. Juan bought [Luisa]$_F$ the most expensive present ⇒
'Juan bought Luisa a present more expensive than the presents that he bought anybody else'

Szabolcsi (1986) and Farkas & Kiss (2000) propose accounts of comparative readings that rely on several constraints at the syntax/semantics interface, with different emphasis on syntactic or semantic conditions. Szabolcsi's proposal is that the comparative reading requires the presence of a "licensing variable" in a particular local domain. She claims that the variable and the operator have to be within the same domain with independent tense, and derives this constraint from the Empty Category Principle. Farkas & Kiss (2000) highlight the semantic properties of the operator binding the licensing variable. They propose the following licensing condition: The comparative reading of a superlative phrase is licensed by an operator that takes a contextually provided finite set as argument, and whose semantics is compatible with the value being a unique element of that set. Their structural constraint—which they call PRIMACY CONDITION—states that the root of the superlative chain must be m-commanded by the licensing operator. This condition is an instance of the following scopal dependence condition: If an operator A is within the scope of an operator B, the root of the operator-chain headed by A must be m-commanded by B. Heim (1999) develops a semantic analysis for comparative readings based on Rooth's (1992) alternative semantics for focus. In the DRT treatment in Gutiérrez-Rexach (1996, 2006), the "licensing operator" is considered a focus operator with an alternative semantics similar to the one advocated by Heim.

The main difference between the analysis defended here and Heim's is that—although I will assume that the superlative DP (headed by the definite determiner) may be subject to QR—the superlative operator stays in situ and does not raise outside the DP. This is possible if one assumes a more sophisticated syntax based on the idea of remnant movement, as explained below. Additionally, my analysis differs from Farkas & Kiss' in that the semantics of the focus operator is made explicit, a well as its interaction with context sets. Here I will develop this analysis, giving additional details on the semantics of the relevant operator that triggers the contrastive interpretation.

First, we need to determine how focus conditions the comparative reading syntactically. We will assume a level of representation of Logical Form where a displacement operation moves constituents to the node where they take scope. We will (conservatively) call this operation Quantifier Raising (QR), and assume the traditional view that treats it as an adjunction operation (as in May 1985), without entering in the debate of whether it should be viewed as a specialized operation targeting certain constituents (Beghelli & Stowell 1997) or as an A-movement operation displacing elements to Agreement Phrases (Hornstein 1995). The context set is determined by the focus value (Rooth, 1985, 1992) of the sentential domain (the TP constituent) where the focused constituent occurs, after the operation of QR has applied to the superlative description—QR applies to the whole superlative description and may not apply only to the superlative operator. Let us go back to example (57) and describe the steps that determine how the comparative reading is derived at the syntax/semantics interface.

First, QR applies to the superlative description (the superlative DP) and adjoins it to the TP constituent.

(58) $[_{TP}$ $[_{DP}$ the most expensive present$]_i$ $[_{TP}$ Juan bought Luisa t_i]]

Secondly, we will assume that the remnant-TP constituent moves to the specifier of Focus Phrase (Brody 1990; Rizzi, 1997; Zubizarreta 1998; etc.)[13] The constituent displaced to FocusP contains the focused expression.

(59) $[_{FocusP}$[Juan bought Luisa t_i $]_j$ $[_{TP}$ $[_{DP}$ the most expensive present$]_i$ t_j]]

Then, the set of alternatives (Rooth 1985, 1992) of the constituent in the specifier of Focus Phrase (i.e. the remnant TP) is calculated. We will use the label EXH to denote the operator that derives the relevant focus-exhaustification of a constituent (see Groenendijk & Stokhof 1984 for the first characterization of a similar operation, as applied to answers, and Aloni 2007 for a recent justification in the analysis of free choice items). For a complex expression α where a focused constituent β occurs, EXH(α) is the set of entities comprising the denotation of β and the alternatives to β satisfying the remaining propositional content of the expression. In other words, EXH determines the set of contextually relevant entities that satisfy the predicative content in question (in addition to the focused element). We now define the denotation of the operators ALT and ALT* as follows: For a given entity *e*, ALT(*e*) is the set of entities (of the same type) from the common ground that are evoked as contextually relevant alternatives to *e*; ALT* is the union of ALT(*e*) and {*e*}.

The focus "exhaustification" of this constituent in the specifier of FocusP in (59) is the set of individuals *y* (comprising the individual denoted by *Juan* in the model and those contextually relevant alternatives to him) such that *y* bought *x* for Luisa. Formally:

(60) EXH($[\text{Juan}]_F$ bought Luisa x) =
λy[PAST(**Buy**(y,**Luisa**,x)) & y ∈ ALT*(**Juan**)]

Thus, the determination of EXH takes place only after QR has displaced the superlative description, creating the trace (copy) that is translated as the variable *x*. Finally, the exhaustification of the remnant TP is substituted for the context set variable of the determiner as follows. Let C be the context-set variable of the definite determiner and A the variable representing the exhaustification of the remnant TP. Then C = λx[∃y[**A**(y)(x)]]. Notice that the type of *y* is the type of the members of **A**. In our example, C = λx[∃y [PAST(**Buy**(y,**Luisa**,x)) & y ∈ ALT*(**Juan**)]]. In other words, the exhaustification of the remnant TP will be used to generate the context set of the

13. Kayne (1994) and Koopman & Szabolcsi (2000) argue for this type of remnant movement independently to derive certain cross-linguistic word-order properties of verbs and particles.

determiner heading the superlative DP. Raising of the remnant TP to FocusP is necessary in order to check the focus feature and activate the final interpretive step. It is also necessary because the focus value of the TP would not be accessible to generate the proper context set otherwise, since in general, only constituents c-commanding a generalized quantifier at LF may become sources for domain restriction (for generating the context set of the determiner heading the generalized quantifier).

We are not done yet in our characterization of the comparative reading. Nevertheless, what is left can be derived from the semantics of the superlative and the interpretation of contrastive focus. Ignoring some of the complexities involved in the analysis of contrastive focus, we will assume that its effect on an expression is similar to that of the ONLY operator; this means that for a formula of the form $\mathbf{P}(x)$, with contrast based on x, we say that $CF(\mathbf{P}(x))$ is true if the following is satisfied:

(61) $CF(\mathbf{P}(x)) = 1 \text{ iff } \mathbf{P}(x) \ \& \ \forall y \in ALT(x)[\neg\mathbf{P}(y)]$

The contrastive focus has the following effect on a superlative within its scope: it is asserted that an individual has a certain maximal degree property (as in the absolute reading), and furthermore that the individuals in the proper alternative set do not have it. Since the alternative set is derived from the common ground and is sensitive to the context/alternative sets built so far, the relevant alternatives would be those derived by restricting the context set of the determiner with the information in the superlative description.

One prediction of this approach is that the effect of focus is local to the sentence in which the focused constituent occurs. Consider the following discourses:

(62) a. $[\text{Juan}]_F$ went to the mall. He bought Luisa the most expensive present.
b. Whenever $[\text{Juan}]_F$ goes to the mall he buys Luisa the most expensive present.

In the discourse in (62a), the focused element occurs in the first sentence and the superlative description in the second one. In (62b), the focused constituent is in the restriction of a tripartite quantificational structure and the superlative is in its nuclear scope. The focus-related comparative reading becomes unavailable in both cases. In other words, (62a) lacks the reading 'Juan bought Luisa a present more expensive than the presents anybody else bought her'. Sentence (62b) also lacks this comparative reading. If we assume that comparative readings are focus-related, what this fact shows is that the focused element has to be in the same clause as the superlative description, which would follow from Szabolcsi's (1986) and Farkas & Kiss (2000) locality constraints.

Let us see how it works. For (62a), the focus value of the first sentential fragment of the discourse would be the set of individuals, alternatives to Juan, who went to the mall:

(63) $EXH([\text{Juan}]_F \text{ went to the mall}) =$
$\lambda z[PAST(\mathbf{Go}(z,\mathbf{to_the_mall})) \ \& \ z \in ALT^*(\mathbf{Juan})]$

If we now choose EXH to provide the context set of the superlative description, we have a problem because there is no object variable in its scope corresponding to the content of the description. The relevant generalization seems to be that the focus value of an expression can provide the context set of a superlative description only if the remnant IP contains a variable (trace) of the superlative description. This entails that the focused constituent and the superlative DP have to be in the same scopal domain. Thus, we have a strong prediction as regards the locality of the focus-affected comparative reading, deriving the effects predicted by Szabolcsi (1986) and Farkas & Kiss (2000).

10. The flexibility of the comparative reading

Another prediction of the theory we are presenting is that a sentence will have as many comparative readings as constituents susceptible of being focused in the relevant sentential domain. The value of EXH as applied to the remnant TP after extraction of the superlative DP is predicted to be different—the alternatives in the exhaustification set will be different—and, consequently, the derived context set for the determiner will also be different. Let us go back to an example similar to one described in the first section:

(64) Peter climbed the highest mountain $[\text{yesterday}]_F$

When the temporal adverb *yesterday* in (64) is focused, we get a "comparative" interpretation in which the context set is the set of mountains that were climbed in the period under consideration (the set of alternatives to *yesterday*). In this case, after the obligatory application of QR that provides sentential scope to the superlative description, and after raising the remnant TP to the c-commanding Focus Phrase, the operation EXH applies. In other words, the exhaustification value of (65a) is calculated. This value is (65b), where *M* is a modifier variable: the set of alternative temporal intervals (circumstances) to *yesterday* in the proposition **Peter climbed** *x*.

(65) a. Peter climbed x $[\text{yesterday}]_F$
b. $\lambda M\, [M(\mathbf{Climb}(x)(\mathbf{Peter}))\ \&\ M \in \text{ALT}^*(\mathbf{yesterday})]$

Obviously, these alternatives will be of the same semantic type (temporal intervals). Moreover, we have to take the function ALT as selecting only contextually relevant alternatives in a given discourse. For example, yesterday may be contrasted to other days of the week within the last ten days when Peter climbed mountains, and not to days in the previous month, etc. The context set restricting the superlative definite description is (66), which derives the intended meaning.

(66) $C = \lambda x[\exists M\, [M(\mathbf{Climb}(x)(\mathbf{Peter}))\ \&\ M \in \text{ALT}^*(\mathbf{yesterday})]]$

Comparative readings arising from DP-internal focus are predicted to be possible, which I believe to be an advantage of the present account (Heim's analysis does not seem to be able to handle non-DP foci). For example, in the following sentences we get comparative readings based on a noun modifier (*Honors*) or on the head noun itself (*professor*):

(67) a. An [Honors]$_F$ student got the worst grade.
b. A [professor]$_F$ was appointed as Vice-Provost.

Not all adjuncts or modifiers trigger comparative readings. Consider, for example, the sentences in (68), with contrastive focus on the purpose/rationale adjuncts:

(68) a. I bought the best car [for my own enjoyment.]$_F$
b. Smith betrayed the most wanted spy [because he was tortured by the police.]$_F$

Sentence (68a) lacks the comparative reading 'For my own enjoyment I bought a car that was better than the cars I bought for other reasons', for example with alternatives such as 'for my job, for my wife's birthday', etc. Similarly, (68b) lacks a comparative reading where other spies are betrayed by Smith for other reasons. Some speakers, nevertheless, can marginally get the comparative reading for (68a). Still, this is uniformly impossible for the sentential adjunct in (68b). One potential explanation for this fact is to connect it to the locality constraint that we have noticed on the comparative reading. If we assume that rationale (and other) adjuncts are syntactically more external or peripheral than other modifiers (time, place, etc), then their adjunction place must be outside the VP or even outside the sentential domain. Thus, we have a case similar to (62), in the sense that the context set for the determiner (and the derived comparison class for the superlative) cannot be retrieved form alternatives to the modifier. A reviewer suggests that it is not completely clear whether rationale adjuncts have to be generated outside the VP layer necessarily. There is some evidence suggesting that in fact they are not. For example, sentence (69) is ambiguous:

(69) I didn't do it because you asked me.

The "not-because" reading ('I did it but not because you asked me') requires negation to have scope over the rationale clause, so the adjunction site of the rationale clause cannot be peripheral.[14] A less problematic explanation that does not require specific assumptions about the syntactic position of the adjunct would rely on the semantic

14. It would still be possible to defend the relatively external/peripheral role of rationale clauses despite the existence of the negation data presented in (69), if one were to assume that the clause is subject to reconstruction in this case, or that it occupies an intermediate layer dominated by negation but with scope over other sentential elements.

properties of the adjuncts. Szabolcsi & Zwarts (1993) propose that certain adjuncts cannot undergo extraction out of weak islands (for example negation) because the structure of their denotational domains is not compatible with the operation denoted by the island-creating expression. Assuming that rationale clauses denote 'reasons'—without committing ourselves to the specific nature of these entities[15]—it can be argued, as Szabolcsi & Zwarts (1993) claim, that the set of reasons has the structure of a join semi-lattice that is not closed under complements or meets. For example, for a given reason *x*, it is not possible to express the complement of *x*. The computation of the set of (proper) alternatives requires precisely taking into consideration the complement of a certain entity x, i.e. the set of alternatives to it (ALT(x) = −x). This is why, with respect to (68a) above, the comparative reading is not available. Deriving the reading 'For my own enjoyment I bought a car that was better than the cars I bought *for other reasons*' would require to identify the complement of *for my own enjoyment*.

11. The non-specificity effect

Szabolcsi (1986) also notices that superlatives are sensitive to the "definiteness" restriction. Superlatives occurring in a "definiteness-effect context" only have the comparative interpretation, as exemplified by the contrasts in (70):

(70) a. *Yesterday there were the fewest guests.
b. There were the fewest guests [yesterday]$_F$

The superlative *fewest* does not allow an absolute reading (cf. Gawron 1995), so the variant without focus (70a) is clearly ungrammatical in an existential-*there* context. (70b) is grammatical because focus licenses the comparative interpretation (the only possible one for *fewest*). This contrast can be tested also in other environments that are sensitive to the definiteness restriction, such as existential-*have* environments and with modification by *ago*:

(71) a. *John has the smartest sister.
b. [John]$_F$ has the smartest sister.

(72) a. *You met Peter the fewest years ago.
b. You met [Peter]$_F$ the fewest years ago.
c. [You]$_F$ met Peter the fewest years ago.

15. If one assumes that 'reasons' are propositional entities, then rationale clauses would denote sets of possible worlds (those compatible with the intended reason). As such, their algebraic structure would allow that the complement operation be defined, and this would weaken Szabolcsi & Zwarts' line of analysis considerably.

Farkas & Kiss (2000: 430) summarize this empirical observation as the following NON-SPECIFICITY EFFECT: "In syntactic constructions sensitive to specificity, noun phrases containing a superlative pattern with non-specific/indefinite noun phrases under the comparative interpretation, and with specific/definite noun phrases under the absolute interpretation". Szabolcsi explains this effect by proposing that absolute superlatives are definite and comparative ones are indefinite, a difference due to the different syntactic category of their respective specifiers. This type of account is not possible for us, since we are assuming that superlatives are uniformly definites—due to the fact that a definite determiner always heads the superlative description.

Notice that even if we were to assume that superlatives can be definite or indefinite, we still do not have an account of why this is so. In other words, we still would not know which properties of the comparative reading are the ones that trigger the definite/specific-like behavior. Farkas & Kiss's (2000) account is semantic in nature and addresses this issue in a more direct fashion. Comparative superlatives contrast with absolute superlatives (and other definites) in "the special way their referent is established". Determining the referent of an absolute superlative requires comparing elements of a contextually provided set with respect to a particular dimension. On the other hand, determining the referent of a comparative reading requires considering "the range of the function involved in their interpretation for every element of its domain". In the standard example (*John climbed the highest mountain*), the referent of the highest mountain is established relative to the function f_{climb}. Which mountain the superlative description refers to depends not only on what mountains John climbed but also on what mountains the other climbers climbed. We very much agree with Farkas & Kiss' semantic account in that we believe that the proper explanation of the non-specificity effect has to be related to the way in which comparative readings are established. Nevertheless, it is not clear from their account why being functional (dependent on the whole range of the function involved) becomes the critical factor and, furthermore, in what respect this qualifies as "non-specific/non-definite". Dependent readings of indefinites and definites are also function-like but only dependent indefinites can occur in existential-there contexts:[16]

(73) There was a/*the parent of every student at the graduation ceremony.

An alternative semantic account, suggested in Gutiérrez-Rexach (1996, 2006), is not to focus on the properties of the comparative reading per se, but rather on the

16. To be fair to Farkas & Kiss' (2000) account, the difference between comparative readings and dependent functional readings is that the latter are dependent on one individual (one value assigned to the relevant variable), whereas the former would depend on the whole range of a function. Nevertheless, it is still not clear why this property makes the comparative reading more "indefinite-like".

conflict between the requirements imposed by existential sentences and those associated with the absolute reading. Thus, the clash between the environments that filter out specific/definite determiners and the main properties of the absolute reading is what brings about the non-specificity effect. There are a number of accounts of the definiteness/specificity effect, which emphasize semantic or pragmatic components. Keenan (1987) relates the definiteness effect and the property of intersectivity. Only intersective or generalized existential determiners (see Section 3 above) can occur in an existential construction. Since definite determiners are co-intersective and since the superlative description is headed by a definite determiner, superlative descriptions would be uniformly predicted to be out in environments sensitive to the definiteness/specificity effect.

Other theories of the definiteness restriction rely on pragmatic/contextual factors, such as context dependence or presuppositionality (cf. Zucchi 1993). In this vein, Kamp & Reyle (1993) claim that existential sentences obligatorily introduce non-dependent or free discourse referents. In other words, the discourse referent introduced by a DP occurring in an existential sentence cannot be linked to other discourse referents already available in discourse. A prediction of this explanation is that those determiners associated with dependent discourse referents (namely those that are inherently restricted to context sets) will be banned in existential-*there* environments.

(74) a. *There are those students in the classroom.
b. *There are three of the students in the classroom.

We have claimed above that superlative descriptions are inherently restricted to context sets, and that this explains several contextual characteristics of these expressions. A consequence of this feature for superlatives under the absolute reading would be that the context set of the superlative description would be empty so the DP would fail to refer—the intersection of the denotation of the descriptive part with the empty set is always empty. Comparative readings, on the other hand are different in this respect. For the comparative reading of a superlative, the content of the context set is provided not by the previous discourse but by accommodation of the propositional content of the sentence after QR. For example, let us consider sentence (70b) again:

(70) b. There were the fewest guests [yesterday.]$_F$

The sentential fragment that will become part of the context set is: *there were x* [*yesterday*]$_F$. This yields the context set (75), which is the set of individuals under consideration in ALT*(**yesterday**):

(75) $C = \lambda x[\exists M\, [M(\mathbf{Thing}(x))\ \&\ M \in \text{ALT*}(\mathbf{yesterday})]]$

Since C is non-dependent or free, it will not clash with the requirements of an existential-*there* context. It is worth highlighting that the present theory is not

exclusively syntactic or semantic. It distributes the explanatory burden in a more interactive fashion: There are certain semantic/pragmatic requirements of determiners and specificity-sensitive environments that have to be satisfied. Certain logical-form requirements associated with focus and the computation of comparative readings allow the circumvention of a potential clash between these requirements.

12. Quantification and comparison

In addition to the Non-Specificity Effect, there are other semantic restrictions on the availability of comparative readings. Comparative readings of superlatives are sensitive to the semantic class to which a focused quantifier belongs. Farkas & Kiss (2000) observe that the following sentences lack comparative readings based on the focused constituent:

(76) a. [Everybody]$_F$ climbed the highest mountain.
b. [Several/many men]$_F$ climbed the highest mountain.

The same would apply to (77):

(77) [Fewer than three men]$_F$ climbed the highest mountain.

In (76a) a universal quantifier (*everybody*), in (76b) a vague or approximative quantifier (*several /many men*), and in (77) a decreasing quantifier (*fewer than three men*) are the focused constituents in their respective sentences. The superlatives are interpreted as absolute in all three cases. Sentences such as (78), where the superlative can only be interpreted comparatively, are unacceptable:

(78) a. *Everybody/a man was paid the least money.
b. *Many/several men were paid the least money.

Certain classes of indefinites may also be incompatible with comparative readings. Consider (79):

(79) a. A woman climbed the highest mountain.
b. A [woman]$_F$ climbed the highest mountain.

Sentence (79a) lacks a comparative reading if the indefinite *a woman* has just an existential (non-specific) interpretation. On the other hand, if this indefinite is understood as referential or specific, or if it is focused as in (79b), the comparative reading becomes possible. This is clearly the case for the latter sentence in a context in which we are talking about two separate groups of men and women and we assert that a woman (not a man) climbed the highest mountain—i.e. it was a member of the group of women under consideration who climbed a mountain higher than the mountains

climbed by any of the members of the group of men. Cardinal quantifiers exhibit the same behavior as indefinites: They trigger comparative readings when they are specific or focused. This is also the case with overt or covert partitives:

(80) a. More than three men climbed the highest mountain.
b. Several of the men climbed the highest mountain.
c. Two of your five cousins climbed the highest mountain.

Farkas & Kiss conclude that Szabolcsi does not have an adequate account for this type of data—QR would not leave an appropriate variable behind. Their account is summarized in the following Licensing Condition: "The comparative reading of a superlative phrase is licensed by an operator that takes a contextually provided finite set as argument and whose semantics is compatible with the value being a unique element of that set". Thus, only expressions that can furnish a unique set/element are able to provide the proper argument for the comparative reading. Their prediction is that a focus operator satisfies this uniqueness condition whereas *every*, *several, many* or *most* are incompatible with this uniqueness condition.

Although I agree with Farkas & Kiss' judgment with respect to which quantifiers (operators in their terminology) seem to license the comparative reading, I believe that it is not clear on their account why all these terms are grouped together. On the other hand, the semantics of superlatives that we are pursuing here does not require the presence of a licensing operator binding a variable. I want to propose a more direct account of the sensitivity of certain quantifier classes to comparison: in these cases the type of operation entailed by focusing, namely the calculation of alternatives, conflicts with the presuppositions of quantifiers. In order to build the contrast set of alternatives (ALT), potential individuals to which the context-set predicate does not apply have to be able to be identified. This requirement eliminates universal quantifiers because the property in question applies to every individual in the resource domain. It also eliminates non-focused/non-specific indefinites and non group-denoting partitive quantifiers because the determiners heading them lack a context-set argument (Gutiérrez-Rexach 2001). For example, the following context set would entail a contradiction, since *everybody* would require to apply a property to all the members of a contextually given domain—this is the essence of universal force—, but the calculation of the alternative-based context set would presuppose that the predicative property does not apply to all the individuals.

(81) $C = \lambda x.\exists y\,[\text{PAST}(\mathbf{Climb}(y, x))\ \&\ y \in \text{ALT}^*(\mathbf{Everybody})]$

Certain presupposition "suspenders" (Horn 1972), such as *if anybody*, also block the comparative reading. Consider the question in (82):

(82) Who, if anybody, climbed the highest mountain?

The suspender *if anybody* blocks the contextual presupposition of a *wh*-phrase, specifically in the sense that this latter term cannot be interpreted as a discourse-dependent or D-linked *wh*-phrase, in Pesetsky's (1987) terminology. It also blocks the comparative reading of the superlative. This dual blocking effect can be certainly connected because it really is an incompatibility between the comparative reading and non D-linked *wh*-phrases, no matter whether this property is intrinsic—as is the case with aggressively non D-linked phrases such as *wh-the hell*—or induced by a suspender, as in (82) above. Notice that D-linked *wh*-phrases are sometimes argued to be similar to specific and presuppositional DPs in their discourse-related properties (cf. Diesing 1992). In Gutiérrez-Rexach (1997), D-linked *wh*-phrases are analyzed as denoting interrogative determiner or quantifier functions that are inherently restricted to a context set. On the other hand, non D-linked *wh*-phrases are not discourse dependent and cannot be restricted by context sets. If this is the case, then for non context-dependent *wh*-phrases it becomes impossible to activate the mechanism needed for the comparative reading to arise, namely the introduction of a set of contextually determined alternatives.

The presence of suspenders modifying other focused Determiner Phrases also blocks the comparative reading of superlatives.

(83) John/those three lunatics, if anybody, climbed the highest mountain.

The above sentence lacks the comparative reading 'John/the three lunatics climbed a mountain higher than the mountains other individuals under consideration climbed'. Other "suspenders"—using this term in a wider sense—are also able to block the comparative reading such as *to give an example, to name a few, most likely, I believe*, etc. In all these cases, as expected, the comparative reading is blocked in sentences where it would be possible otherwise, such as (84a), or the sentence becomes ungrammatical, in those cases where only the comparative reading would be available, such as (84b).

(84) a. My brother, to give an example, climbed the highest mountain.
b. *My brother, to give an example, invited the fewest guests.

The type of presuppositional conflict that emerges in each case is different,[17] but uniformly the insertion of the suspender collides with the requirement of identifying a presupposed context set as the basis for the relevant alternatives. In sum, we have seen two additional types of blockers: quantifiers with certain semantic properties and optional modifiers that act as presupposition suspenders. There also are focus particles whose intrinsic presuppositional or asserted content is incompatible with

17. For example, *if anybody* requires lack of knowledge/certainty about which individual(s) have the property under discussion; *to give an example* hedges the relevant attribution as not categorical, etc.

the requirements associated with the comparative reading. Consider the contrasting behavior of the particles *only* and *even* in this respect:

(85) a. Only John climbed the highest mountain.
b. Even those who did not wear the right gear climbed the highest mountain.

Sentence (85a) is compatible with a comparative reading. What this sentence asserts is that John climbed a mountain higher than the mountains anybody else climbed. On the other hand, (85b) lacks the reading 'Those who did not wear the right gear climbed a mountain higher than the mountains climbed by other climbers'. This is due to the fact that the meaning of *only* is compatible with the presuppositions satisfied by the comparative reading of superlatives: [*Only x* … **P** …] states that *x* has property **P** and its alternatives do not. Hence, the presupposition of the degree operator that there are alternative degree properties applicable to alternative individuals is satisfied in the context created by the assertion of [*Only x* …]. Now consider the meaning of *even* in (85b): The property expressed by *climbed the highest mountain* applies to all individuals under consideration including those in a potential alternative set to *x*. This does not provide an adequate background for justifying the presupposition of the superlative operator, namely that there are other degree properties that apply to the other individuals in the relevant alternative set. Compare in this respect (85b) with (86), where the scope of *even* does not extend to the second sentence, and the superlative may have a comparative reading.

(86) Even John climbed a mountain. In fact, he climbed the highest mountain.

13. The "upstairs *de dicto*" reading

Summarizing what we have seen so far, the prevalent view in the literature is that superlative descriptions can have two different interpretations: the absolute one and the comparative one (Ross 1964; Szabolcsi 1986; Gawron 1995; Heim 1985, 1999; Farkas & Kiss 2000; Sharvit & Stateva 2002, etc.). Views differ in the way in which these readings are derived. For several authors (Heim 1999; Farkas & Kiss 2000; Sharvit & Stateva 2002), the superlative morpheme takes a contextual argument C (the comparison set) and comparative readings are obtained by contextually restricting the superlative with C. In this view, the definite does not contribute to the composition of meaning. Here we have argued that the contribution of the definite determiner (the contextually restricted element) and the superlative need to be separated.

Theories of superlatives that rely on contextual restriction (in one form or another) can be further divided in two varieties: movement theories and in-situ theories. For movement theories (Heim 1999), the superlative can move outside the superlative

description/DP and take scope over other elements in the sentence. For in-situ theories, this option is not available, so interpretive differences have to be handled via contextual restriction. Heim (1999) acknowledges that in extensional contexts there is no need for movement and the comparative reading can be derived as a special case through specific contextual restrictions. In this respect her theory, the theory of Farkas & Kiss or the present theory are equally predictive. Our theory adds the claim that although the superlative operator does not move, there are syntactic requirements associated with the checking of focus features that have to be met in order to compute the relevant context set.

Intensional environments are different in that they do seem to introduce significant differential predictions. Consider (87):

(87) John needs to climb the highest mountain.

The interesting fact about intensional environments is that the superlative description can be read *de re* or *de dicto*. Four readings are then expected: absolute *de re*, absolute *de dicto*, comparative *de re*, and comparative *de dicto*. These readings are paraphrased as follows (Sharvit & Stateva 2002):

(88) Absolute *de re*:
For all worlds *w* compatible with John's needs in the actual world, he climbs in *w* the actual mountain that is higher than any other relevant actual mountain.

(89) Absolute *de dicto*:
For all worlds *w* compatible with John's needs in the actual world, he climbs in *w* the actual mountain that is higher than any other actual mountain that anybody else needs to climb.

(90) Comparative *de re*:
For all worlds *w* compatible with John's needs in the actual world, he climbs in *w* the mountain that is higher in *w* than any other relevant mountain in *w*.

(91) Comparative *de dicto*:
For all worlds *w* compatible with John's needs in the actual world, he is the best mountain climber in *w*.

It is clear that the absolute readings are non-problematic for the in situ theory. In (88) we are comparing actual mountains (mountains in the world of evaluation w_0), so John climbs the highest mountain in the world (Mt. Everest). In (89), for each world under consideration John climbs the highest mountain in that world. The comparative readings can be handled via contextual restriction too. In (90), the actual mountain that John needs to climb is higher than the actual mountains that the other climbers under consideration need to climb—everybody needs to climb some real-world mountain. In (91) John's need is to climb a mountain higher than anyone else does (to outstrip

everyone else). The right truth-conditions of both readings be derived via contextual restriction on C and the superlative morpheme may stay in situ.

Nevertheless, there is a fifth reading, which can be labeled the "upstairs *de dicto* reading" (Sharvit & Stateva 2002). Consider the following scenario:

(92) John needs to climb a 5000 ft mountain (or higher) to improve his ranking.
Bill needs to climb a 4000 ft mountain (or higher) to improve his ranking.
James needs to climb a 3000 ft mountain (or higher) to improve his ranking.

The "upstairs *de dicto*" interpretation, under (92), is that John's minimal needs exceed the needs of the other members of the context set, so he really needs to climb the higher mountain. As noted by Heim (1999) this reading is not reducible to any of the other readings. Since there is no particular mountain that John needs to climb, the *de re* readings are excluded. *De dicto* readings are excluded too. For example, John's needs could be satisfied in a world in which he climbs a 6000 ft mountain and Bill climbs a 7000 ft mountain. In this world his "needs" are still the most demanding despite the fact that his mountain is not the highest among the mountains climbed. Thus, the upstairs *de dicto* reading is verified by worlds where John's needs are the most stringent, even if in some of those worlds the other climbers satisfy their (lower) needs climbing mountains that happened to be higher than the one John climbs.[18]

Heim (1999) proposes an account that captures this fifth reading within a DP-external interpretation of the superlative operator: *-est* scopes above the intensional verb (*need*) and the superlative description stays within the scope of *need* and is evaluated relative to the world-argument of *climb*:

(93) John [-estC [needs [to climb ~~the~~ d-high-mountain]]]

The definite determiner *the* is replaced with an indefinite-like determiner *~~the~~* (cf. Sharvit & Stateva 2002) to prevent (93) from meaning that there is a degree *d* such that John is the only one who needs to climb the unique *d*-high mountain.

The upstairs *de dicto* reading follows naturally from the DP-external-superlative theory. Since the superlative operator has the option to move out of the DP, it can be placed above the matrix or the embedded verb, deriving all the available readings. Nevertheless, Heim (1999) also indicates that an in-situ rendering of the "upstairs *de dicto*" reading is possible if C becomes a function of the evaluation world. Sharvit & Stateva (2002) develop a full-fledged in situ theory where the superlative description is

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18. It seems, nevertheless, that setting the requirement just on each climber's needs could be a constraint that is weaker than what is actually the case. Consider a scenario where in all the worlds under consideration every other climber ends up climbing mountains higher than those climbed by John, but his needs are still satisfied (all the mountains he climbs are higher than 6000 ft). Most speakers I have asked find the sentence odd in that scenario.

considered a property containing an intensionalizing operator (IDENT), so the superlative DP would be interpreted as the unique property which is a member of a contextually salient domain and which, in each world under consideration, has the same value as the property of being the highest mountain. Matushansky (2006) proposes an alternative approach that requires expanding the notion of a kind to contextually established classifications, not just natural kinds. In this respect, mountain sub-kinds can be separated according to height: In the scenario in (92), mountains equal to or higher than 3000 ft; mountains equal to or higher than 4000 ft; mountains equal to or higher than 5000 ft; etc. These sub-kinds can be compared with respect to height. Deriving the upstairs *de dicto* reading would require restricting the relevant subkind further to mountains that someone needs to climb. Since kinds are not linked to possible worlds—only their realizations are—, such domain restriction does not entail anything about real-world mountains.

Summarizing, the DP-external theory seems to be the simplest and most straightforward account of the fifth reading of superlatives, but at the cost of having to assume movement of the superlative operator out of its DP host, something that has been challenged on empirical and theoretical grounds. In situ theories are possible too, but they involve additional assumptions that need independent justification: the substitution of *a* for *the*; positing an intensionalizing operator; or expanding the notion of a kind. The account that we propose here does not require us to change our assumptions about the basic structure and semantic composition of superlative descriptions. Rather, it exploits the syntactic and semantic mechanisms we have introduced in the last sections and does not involve assuming or postulating new theoretical entities that only apply to these cases.

One fact that seems to me the most relevant about the fifth reading is that it is a comparative reading. There are no absolute upstairs *de dicto* readings. Consider (94):

(94) John needs to get paid the highest salary.

As described above, the "upstairs *de dicto*" reading compares John's needs to other individuals' needs and asserts that his are the costliest. For example, John is the president of a corporation so he needs to get paid $1 million a year, whereas the VP or the executive director only need to make half of that—independently of the possibility that on a given year, the bonuses awarded to each one of them might have the result that their total compensation is higher than John's.

One could try to argue that there is an absolute "upstairs *de dicto*" reading. For example, if John is the neediest person in the world so his annual compensation has to be the highest in the world. Nevertheless, I think that this reading would not be an "upstairs *de dicto*" reading. If *the highest salary in the world* refers to the largest compensation, then this reading is an absolute reading (*de re* or *de dicto*). From the point of view of the superlative operator movement theory, it could be argued that *-est* takes

scope over *need*, with the result that the upstairs *de dicto* would be an absolute reading, since as a matter of fact we are picking the neediest individual. This does not seem to be correct either, in that the "upstairs *de dicto*" reading does not categorize John as the neediest individual but establishes his needs as the most demanding salary-wise in comparison to the needs of others. Furthermore, sentences with universal terms or with presupposition suspenders (see Section 12 above)—which block the availability of comparative readings—also seem to lack the "upstairs *de dicto*" reading:

(95) a. Everybody needs to get paid the highest salary.
b. John, if anybody, needs to get paid the highest salary.

For example, (95b) clearly lacks the "upstairs *de dicto*", reading since there is no comparison class against which John's needs can be assessed.[19]

If we are right in assuming that the "upstairs *de dicto*" reading is a comparative reading, then according to our theory, this reading has to be syntactically encoded: One constituent is contrastively focused and acts as the basis of the relevant comparison. Since what is being compared in the "upstairs *de dicto*" reading of (94) are needs, we conclude that in the "upstairs *de dicto*" reading the verb undergoes focus.[20] According to the syntactic derivation proposed in Section 9, the superlative description adjoins to TP and the remnant-TP constituent—containing the focused element—moves to the specifier of Focus Phrase:

(96) $[_{TP}$ $[_{DP}$ the highest salary$]_i$ $[_{TP}$ John needs to get paid t_i]]
(97) $[_{FocusP}$[John needs to get paid t_i]j $[_{TP}$ $[_{DP}$ the highest salary$]_i$ tj]]

Now the focus "exhaustification" of the constituent in the specifier of FocusP is calculated:

(98) EXH(John $[\text{needs}]_F$ to get paid x) =
$\lambda V[V(\textbf{John}, \textbf{get paid}\ x)) \ \&\ V \in \text{ALT*}(\textbf{need})]$

19. When the preceding discourse establishes a comparison class, the parenthetical *if anybody* ceases to work as a blocker – Here we get the "upstairs *de dicto*" reading: John's needs are the highest (if anybody has any need at all).

(i) John, Bill and Sam are the top officers in our company.
John, if anybody, needs to get the highest salary.

20. I have conducted a relatively informal test on whether there is a correlation between the availability/prominence of the "upstairs *de dicto*" reading and a particular prosodic focal marking on the verb, and the results are not conclusive. About 40% of the speakers seem to prefer this reading when the verb attracted focal accent, but for a majority it was equally available under other prosodic circumstances.

Here we need to assume that the relevant alternatives to *need* are the needs of other individuals under consideration.[21] Actually, this might suggest a refinement of our idea in that what seems to be in the scope of the ALT* operator is not just *need* but also *John*—i.e. we are talking about John's needs as compared to other relevant individuals needs.[22]

(99) $\lambda V \exists y[V(y, \textbf{get paid } x)) \;\&\; V \in ALT^*(\textbf{need}(\textbf{John}))]$

For example, in a given scenario, the alternatives to John's needs are Bill's needs and Sam's needs, so ALT*(**need**(**John**)) is the set {**need**(**John**), **need**(**Bill**), **need**(**Sam**)}. The exhaustification of the remnant TP is substituted for the context set variable of the determiner, so we get the following context set for the superlative description:

(100) $C = \lambda x[\exists V \exists y[(V(y, \textbf{get paid } x)) \;\&\; V \in ALT^*(\textbf{need}(\textbf{John}))]]$

Thus, the context set for the superlative description is the set of entities in the need-alternative domain under consideration (what *y* gets paid). In every world, the superlative description *the highest salary* associates with John the highest salary in that need-domain.

15. Conclusion

In this paper a semantic analysis of superlative descriptions has been presented, where it is argued that they should be viewed as a subclass of definite DPs (which is the result of the composition of a definite superlative operator and a definite determiner). A central point in our argumentation has been that contextual factors affect the interpretation of superlatives; and that a distinction has to be established between the context set of a definite and the frame of comparison of the superlative. Focus has also been claimed to determine the comparative reading, as shown by an array of constructions. These hypotheses—in conjunction with several assumptions about the syntax/semantics

21. An anonymous reviewer is probably right in suggesting that in some circumstances this might require a refinement of what we understand as an entity, probably making our treatment similar to Matushansky's (2006) approach based on contextually determined kinds.

22. Two alternative implementations of this idea come to mind. The first possibility would be to claim that needs are intrinsically agent-based, i.e. there are no needs to be compared in abstract. Rather what is being compared are a certain individual's needs and the needs of other contextually-relevant individuals. The second possibility is to say that the "upstairs *de dicto*" reading is an instance of second-occurrence or multiple focus: Not only the verb would be focused but also the subject. For the purposes of the current analysis the outcomes of both possibilities seem to be similar.

interface—explain a variety of constructions and interpretations, including the much debated "upstairs *de dicto*" reading.

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Superlative adjectives and the licensing of non-modal infinitival subject relatives*

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The present contribution proposes an analysis of adjectives that license non-modal infinitival relative clauses. I propose to reduce the uniqueness constraint on the noun phrase modified by non-modal infinitival relatives to licensing by a contrastive identificational focus. The contrastive component ensures that the licensing adjectives exclude the existence of a still higher or lower degree: uniqueness is due to selection of the endpoint of a scale. I further propose that superlatives and comparable modifiers are polysemous. In their positive use they assert a positive proposition and entail a negative one, in which case they function as identificational foci; in their negative use, on the other hand, they assert a negative proposition and entail a positive one, in which case they function as contrastive foci. The negative use of superlatives and equivalent modifiers licenses non-modal infinitival relatives, subjunctive relative clauses (e.g. in Romance) and negative polarity items like *ever*. The positive use of superlatives and comparable modifiers does not license non-modal infinitival relatives, subjunctive relative clauses, and negative polarity items, but only indicative relative clauses.

1. Introduction

This paper is concerned with the identification of the properties of a small class of adjectives, which allow them to license infinitival subject relative clauses.[1] With

*This paper was presented at the *XXXIth Incontro di Grammatica Generativa* in Rome, the 5th GLOW in Asia in New Delhi and at the *Workshop on DP-internal Information Structure* at Utrecht University. I thank the audiences, and especially Adriana Belletti, Tim Stowell, Claire Beyssade, Enoch Aboh, Guglielmo Cinque, and Norbert Corver for their remarks on this paper. I would also like to thank Brigitte Kampers-Manhe and Jasper Roodenburg for their comments on an earlier version of this paper. Furthermore I am grateful to the reviewers of this paper for their valuable remarks. All errors are of course mine.

1. I will show in this paper that apart from adjectives there are some other elements or constructions that license infinitival subject relatives, such as the restrictive particle construction *ne…que* ‘only’ in French, or a clefted constituent in Italian, which means that in fact the adjectives are only

subject relative clauses, the head noun is interpreted as the subject of the relative clause. Subject relatives occur with active verbs, as in (1) and (2), and with passive verbs, as in (3) and (4):

(1) He was the youngest child to have had that operation at that time.
(2) John is the only man to really know her.
(3) The first person to have been killed by an electric chair is William Lelmer.
(4) The last person to have been seen with her was Robert Wood.

The subject relatives that are discussed in this paper depend on a head noun modified by a superlative or a comparable modifier, such as *only* or the ordinals *first* or *last*. They are called non-modal infinitival relative clauses in the literature and are distinguished from modal infinitival subject relative clauses as in (5) or infinitival object relative clauses as in (6), which are always modal and which are not licensed by a superlative adjective modifying the head noun (Kjellmer 1975; Geisler 1995; Bhatt 1999, 2006):[2]

(5) The man to fix the sink is here. (= the man whose purpose is to fix the sink)
(6) Jane found a book to draw cartoons in. (= Jane found a book one could/should draw cartoons in)

The goal of the paper is to account for the fact that superlative adjectives and equivalent modifiers license non-modal infinitival relative clauses. According to Kjellmer (1975: 325), "it seems that it is the selective function of superlatives that is operative here": In (1–4), *the youngest child* selects one out of several children, *the only man*, selects one out of many men, *the first person* or *the last person* selects one out of many persons.[3] Pesetsky & Torrego (2001) follow Kjellmer (1975) in assuming that the head

a (large) subgroup of the licensors of infinitival subject relatives. I will claim, however, that all licensors possess the same property that allows them to license infinitival subject relatives.

2. Infinitival subject relatives depending on a head noun modified by a superlative or a comparable modifier can also have a modal interpretation. Kjellmer (1975) observes that the infinitive in (i) can mean either 'which has been considered', i.e. have a non-modal interpretation, or 'which ought/is to be considered', in which case it has a modal interpretation.

(i) This is the best argument to be considered by the committee.

3. Kjellmer states that selection can be brought about by other linguistic means than superlatives, as in (i) or (ii):

(i) He is one of the businessmen to hold a top post in America.
(ii) Mr and Mrs Warburton were among the guests to arrive later.

Bhatt (1999, 2006) finds these examples less than perfect. Their degraded acceptability will follow from the analysis of non-modal infinitival relatives presented in this paper (see also fn. 10).

of non-modal relatives asserts uniqueness, but state that it is puzzling why there is such a uniqueness constraint.

Kjellmer also notes that superlatives mark the end of a scale.[4] He furthermore points out that the adverb *ever* can be used with relative infinitives. Kjellmer states that *ever* is normally non-assertive, occurring in negative and/or interrogative clauses. In Kjellmer's view, "it is therefore natural that *ever* should also be found in relative clauses, even positive and declarative ones, with superlative antecedents". Kjellmer observes that (7) means 'I haven't ever tasted a better wine than this':

(7) This is the best wine I've ever tasted.

In this paper, I will reinterpret the uniqueness constraint on the noun phrase modified by non-modal infinitival relatives, i.e. the licensing of non-modal infinitival relatives by a head with a selective function, as licensing by an identificational focus. Secondly, I will claim that the identificational focus has to be a contrastive identificational focus, which is a reinterpretation of Kjellmer's observation that superlatives mark the end of a scale, which implies that the existence of a still higher or lower degree is denied. I will argue furthermore that the feature [+contrastive] makes it possible to relate the non-modal infinitival relatives to the modal ones in some way. Data will come from English, French and Italian.

The paper is organized as follows. In §1, I discuss several constructions in which superlatives and equivalent modifiers such as 'only' and the superlative ordinals 'first' and 'last' have been related to focus. In §2, I identify constituents containing superlatives and their equivalent modifiers as identificational foci (Kiss 1998). In §3, I claim that non-modal infinitival relatives are licensed by a special type of identificational focus, viz. a contrastive identificational focus. In §4, I explain how the feature [+contrastive] permits us to relate non-modal infinitival relatives to the modal ones. In §5, I argue

4. Like superlatives, the ordinals *first* and *last* also mark the end of scale. However, Kjellmer also gives an example of a non-modal infinitival relative depending on a head noun modified by the ordinal *fourth*, which does not mark the end of a scale:

(i) He is the fourth Democrat to turn down Senator McGovern's offer.

In most examples of non-modal infinitival relatives with a head noun modified by an ordinal found in the literature, the ordinal is *first* or *last*. Sometimes examples with other ordinals are found, in which, however, the ordinal expresses the end of a scale in some sense. *The third woman* in (ii) means 'only the third woman', i.e. 'almost the first':

(ii) She was the third woman to have been nominated in this category.

The marginal acceptability of ordinals other than *first* or *last* in combination with non-modal infinitival relatives will follow from the analysis presented in this paper.

that the focalized constituent licensing non-modal infinitival relatives moves to the specifier of FocusP (Rizzi 1997) either in syntax or at LF. Finally, in §6, the results of this paper are summarized.

2. Superlatives and focus

It was already observed by Ross (1964) that superlatives are focus-sensitive. They associate with a focused expression in the sentence. The focused expression is compared to a set of alternatives. However, the superlative DP itself can also be focused, which means that the head noun is compared to a set of alternatives.

2.1 Association with focus

Ross (1964), Jackendoff (1972), Rooth (1985), Szabolcsi (1986), Heim (1999), Bhatt (1999, 2006), Farkas & Kiss (2000), Sharvit & Stateva (2002), and others show that superlatives, *only*, and ordinals can associate with a focused element in the sentence, which invokes a set of contextually relevant alternatives (Rooth 1985).

(8) Joan_F gave Caterina the most expensive present.
≈ Some people gave Caterina presents. Of all these presents, the present that was given by Joan was the most expensive.

(9) Joan gave Caterina_F the most expensive present.
≈ Joan gave some people presents. Of all those presents, the present Joan gave to Caterina was the most expensive.

Szabolcsi (1986) proposes that in order to associate with focus, the degree operator or *only* must take scope over the focused element at LF (but see Farkas & Kiss 2000 and Sharvit & Stateva 2002 for a different view). In (8), it adjoins to the clausal constituent and in (9) to VP.

The readings in (8) and (9) are relative or comparative readings. *Joan* in (8) and *Caterina* in (9) are compared to other people. Bhatt observes that an 'absolute' reading is also possible. As the paraphrase of (10) shows, in the absolute reading of (10) telescopes are compared:

(10) Joan gave Mary the most expensive telescope.
≈ The telescope given by Joan to Mary is the most expensive out of the telescopes Joan owns / Mary owns / the telescopes in the world.

Bhatt (1999, 2006) shows that the comparative reading is not available when the superlative, ordinal or *only* is followed by a non-modally interpreted infinitival relative clause. In that case the sentence has an absolute reading. In (11), telescopes that have been built in the 9th century are compared:

(11) Joan gave Mary the most expensive telescope to be built in the 9th century.
≈ The telescope given by Joan to Mary is the most expensive out of the telescopes that have been built in the 9th century.

According to Bhatt, the loss of the comparative reading, i.e. the association with focus reading, with non-modal infinitival relative clauses means that the superlative/ordinal/*only* is adjoined at LF to the infinitival clause in order to license it and cannot adjoin to higher constituents, such as the matrix clause or VP, in order to focalise elements by taking scope over them.

I take the focalized constituents in (8)–(11) to be identificational foci (Kiss 1998), a notion that will be defined in Section 3. Superlatives/ordinals/*only* assign an identificational focus feature to an XP, creating a set of alternatives from which they serve to pick out an element. In (8) and (9), the identificational focus is a constituent outside the superlative DP. In (10) there is a set of telescopes (owned by Joan or Mary or consisting of all telescopes in the world) and in (11) there is a set of telescopes that have been built in the 9th century, in which the superlative serves to pick out an element. In the next two sections I discuss two other cases in which a superlative or a comparable modifier serves to pick out an element from a set of alternatives.

2.2 Nominal supersets and focalization

Barbaud (1976) claims that sentence-initial *de* 'of' + DP in French is licensed by a focalized element. The focalized elements are the following:

A SUPERLATIVE DP

(12) Des deux bouquins, Ludovic a acheté le moins cher.
of-the two books Ludovic has bought the less expensive
'Of the two books, Ludovic has bought the cheapest one.'

A RESTRICTIVE CONSTRUCTION INVOLVING *NE … QUE* 'ONLY'

(13) De ces trios filles, Luc ne sort qu' avec Michèle.
of these three girls Luc RESTR goes-out RESTR with Michèle
'Of these three girls, Luc only dates Michèle.'

A CLEFTED CONSTITUENT

(14) Des trois membres du commando, c'est le japonais qui
of-the three members of-the commando it is the Japanese who
fut capturé.
was captured
'Of the three members of the commando, it was the Japanese man who was captured.'

A DEMONSTRATIVE OR A NOUN MODIFIED BY A RELATIVE CLAUSE

(15) De toutes ces hypothèses, il faut choisir celle qui
of all these hypotheses one must choose the-one that
rend compte des faits.
accounts of-the facts
'Of all these hypotheses, you should choose the one that accounts for the facts.'

(16) De tous ceux qu' on voulait me vendre, j'ai acheté le livre
of all those that one wanted me sell I have bought the book
que tu m' as conseillé.
that you me have advised
'Of all those that they wanted to sell me, I have bought the book that you advised me to buy.'

After the demonstrative pronoun, the relative clause can also be replaced by the deictic markers *-ci* 'here' or *-là* 'there':

(17) De toutes ces hypothèses, il faut choisir plutôt celle-ci.
of all these hypotheses one must choose rather this-here
'Of all these hypotheses, you should rather choose this one.'

A 'NOMINALIZED' ADJECTIVE[5]

(18) De ces deux robes, Marie préfère la turquoise.
of these two dresses Marie prefers the turquoise.'
'Of these two dresses, Marie prefers the turquoise one.'

Barbaud shows that if the included element is not focalized, sentence-initial *de* + DP cannot be used:

(19) *De ces trois filles, Luc sort avec Michèle.
of these three girls, Luc goes-out with Michèle

(20) *Des trois membres du commando, le japonais fut capturé.
of-the three members of-the commando, the Japanese was captured

Barbaud argues that *de* + N is base-generated in sentence-initial position in these sentences and is licensed by a focalized constituent. He does not specify, however, what

5. In fact, the adjective has not been nominalized, but is used without a noun. We are thus dealing with noun ellipsis here. In French only a limited class of adjectives can be used in a noun ellipsis construction, as observed by Barbaud: *prochain* 'next', *suivant* 'following', *seul* 'sole', *premier* 'first', *dernier* 'last', and some other adjectives such as color adjectives. (See Sleeman 1996 for an analysis of noun ellipsis in French).

he means by focalization. He notes that a constituent can be marked as being focalized through the application of a special device, such as clefting, through the deletion of a noun (with superlatives, 'nominalized' adjectives and *lequel* 'which one') or through the presence of a relative clause, which identifies the head noun it modifies as a subset of the set formed by the sentence-initial nominal superset. I take the focalized constituent to be an identificational focus, a notion to be made precise in Section 3. The presence of a superlative adjective, an ordinal or *only* as the modifier of a DP leads to an identificational focus interpretation of the DP.

2.3 Adjectival supersets and focalization

Azoulay-Vicente (1985) claims that *de* 'of' + adjective in French is also licensed by the focalization of a constituent. She shows that the focalized constituents licensing *de* + DP also license *de* + A:[6]

A RESTRICTIVE CONSTRUCTION INVOLVING *NE … QUE* 'ONLY'[7]

(21) Je n' ai que deux pizzas de chaudes.
I RESTR have RESTR two pizzas of hot
'I only have two hot pizzas.'

A CLEFTED CONSTITUENT

(22) C'est deux revues que j'ai reçues d' intéressantes.
it is two journals that I have received of interesting
'It was two interesting journals that I received.'

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6. Whereas with a superlative the use of sentence-initial *de* + DP is possible (see 12), the use of *de* + A, however, is not:

(i) *Marie est la plus intelligente, de belle.
Mary is the most intelligent of beautiful

7. In the restrictive construction it is not obligatory to use *de* 'of' before the adjective:

(i) Je n'ai que deux pizzas chaudes.
'I only have two hot pizzas.'

In (i) the restriction concerns the whole DP including the adjective, whereas in (21) it concerns the DP without the adjective, the adjective being a separate constituent, as in *You want something hot? I only have two pizzas*. Notice that since all kinds of (predicative) adjectives can be used in the *de* + adjective construction, we are not dealing here with noun ellipsis, which is licensed by only a small class of adjectives in French, see fn. 5.

A DEMONSTRATIVE PRONOUN

(23) Je connais celui-ci d'intelligent.
I know this-here of intelligent
'I know this intelligent one.'

A 'NOMINALIZED' ADJECTIVE

(24) Le seul à être venu, de compétent, n' est pas resté.
the only to be come of competent NEG is NEG stayed
'The only competent one to have come has not stayed.'

If a constituent is not focalized, *de* + A cannot be used:

(25) *J'ai deux pizzas de chaudes
I have two pizzas of hot

In Azoulay-Vicente's analysis, *de* + A is the domain of a variable (see also Hulk & Verheugd 1994 for a similar analysis). The variable replaces the focalized constituent (Chomsky 1971; Jackendoff 1972). Azoulay-Vicente illustrates this with (26), which presupposes (27):

(26) MARY baked the cake.
(27) Someone baked the cake.

Someone represents a variable and *Mary* has been chosen in a class of elements able to substitute for *someone*. Following Chomsky (1976), Azoulay-Vicente adopts the logical form in (29) for (28):

(28) JOHN loves Mary.
(29) The *x* such that *x* loves Mary is John.

I assume that the focalized constituents licensing *de* + A are identificational foci, chosen in a class of elements able to substitute for a variable. The notion of identificational focus will be defined in the next section.

3. Identificational focus

Kiss (1998) argues that identificational focus has to be consistently distinguished from information focus (see also Lambrecht 1994 and Vallduví & Vilkuna 1998). Identificational focus expresses a quantification-like operation, whereas information focus merely conveys non-presupposed information. According to Kiss, the semantic-communicative role of the identificational focus is the following: "An identificational focus represents a subset of the set of contextually or situationally given elements for which the predicate phrase can potentially hold; it is identified as the exhaustive subset of

this set for which the predicate phrase actually holds". Semantically, the constituent called identificational focus represents the value of the variable bound by an abstract operator expressing exhaustive identification. By exhaustive identification Kiss means that there is no other element within the set of alternatives for which the predicate phrase holds: the identification of a subset goes together with the exclusion of the complementary subset. Syntactically, the constituent called identificational focus itself acts as an operator, moving into a scope position in the specifier of a functional projection, and binding a variable. In contrast, information focus does not express exhaustive identification performed on a set of contextually or situationally given entities and is not associated with movement.

Kiss shows that in Hungarian exhaustive identification is expressed by a constituent preposed into the preverbal field, more specifically into the specifier position of FocusP, the Focus Phrase.[8] The phonologically empty F head of the Hungarian FocusP is lexicalized by V movement into it, ensuring adjacency between the identificational focus and V in Hungarian:

(30)	Mari	**egy**	**kalapot**	nézett	ki	magának.
	Mary	a	hat.ACC	picked	out	herself.ACC
	'It was a hat that Mary picked for herself.'					

Kiss claims that the English realization of identificational focus is the cleft construction, the translation of the Hungarian identificational focus construction in (30). Kiss adopts Brody's (1990, 1995) analysis of the cleft construction: in English the Focus^0 head of the focus projection takes a CP complement; the cleft constituent moves from within the CP through Spec,CP into Spec,FocusP. Focus^0 is filled by the expletive V *be*, which is subsequently moved into the matrix I. The matrix *it* is an expletive:

(31) $[_{CP}\ [_{IP}\ \text{it}\ [_{I}\ \text{was}_i\ [_{FocusP}\ \text{to John}_j\ [_{Focus'}\ [_{Focus^0}\ t_i\ [_{CP}\ t_j\ [_{C'}\ [_{C}\ \text{that}\ [_{IP}\ \text{I spoke}\ t_j\ ]]]]]]]]]]$

The constituent in Spec,FocusP can also be base-generated, and linked to a corresponding *wh*-pronoun in the embedded CP at LF:

(32) It is me_i who_i is sick.

8. Kiss states that universal quantifiers, *also*-phrases and *even*-phrases cannot function as identificational foci. She shows that in Hungarian, they cannot be preposed into Spec,FocusP and in English, they are barred in the cleft construction. This is captured by Kiss' definition of identificational focus. The universal quantifier, *also* and *even* perform identification without exclusion. As observed by one of the reviewers, in this way Kiss' definition does not work for all focus-sensitive operators. Rooth's (1985) Alternative Semantics framework, in contrast, accounts for the fact that both *only* and *even* can associate with focus. In both cases there is a set of alternatives.

Since *only*-phrases in Hungarian must land in Spec,FocusP, Kiss assumes that *only*-phrases also function as identificational foci. Kiss supposes that "*only* lends them an identificational focus feature". She assumes that, in English, *only*-phrases can move to Spec,FocusP at LF, after spell-out. She suggests "that the satisfaction of the focus criterion can be put off until LF (after spell-out) if the identificational focus feature of the given constituent is visible/audible in PF anyway".[9]

Kiss argues that, semantically, *only*-phrases differ from bare identificational foci. She assumes that the identificational focus must quantify over an unordered set of distinct individuals, referring to Szabolcsi (1983) and Szabolcsi & Zwarts (1993), who argue that a Boolean operation such as complement formation, which is a crucial element of the exhaustive identification operation, can take place only in the case of unordered sets. Kiss argues that in the case of *only*-phrases the identificational focus quantifies over a scale, which is a partially ordered set (König 1991). *Only* introduces an evaluative presupposition into the meaning of the sentence. It expresses that the elements of the set on which exhaustive identification is performed are ordered along a scale, and the element identified as that for which the predicate exclusively holds represents a low value on this scale. In (33), the set of persons whom Mary could, in principle, love are ordered along a scale:

(33) Mary loves only John.

The total set of people whom Mary could love represents the highest value, and single individuals represent the lowest value. The identification of the lowest value of the scale (*John*) goes together with the exclusion of the higher values, the sets of two or more members.

Kiss observes that exhaustive identification among partially ordered elements is not specific to *only*-phrases. It applies to all scalar domains, such as the identificational focus in the Hungarian example (34), which contains a non-presupposed numeral and a presupposed NP:

9. This type of movement should be distinguished from the adjunction of the focused phrase to *only* at LF in association with focus sentences (Anderson 1972), an analysis that has been criticized by Rooth (1985). In Anderson's approach, the focus phrase adjoins to *only* or *even*, which should lead to the violation of an island constraint (complex NP constraint) in *You can do lots of things with bananas; I even know a guy who SMOKES them*, contrary to fact. In Kiss' paper, movement concerns an *only*-phrase to Spec,FocusP, which takes place in syntax in Hungarian and at LF in English. Since this is not a case of association with focus, island constraints are not violated (if the *only*-phrase moves to Spec,FocusP of its own clause).

(34) János **két** könyvet választott ki.
John **two** book.ACC choose PERF
'It was **two** books that John chose.'

Here too, the identificational focus quantifies over sets of books of different cardinality.

In the previous section, I discussed three constructions containing focalized constituents, which I take to be identificational foci. In all three cases, the focalized constituent represents a subset of a set of contextually or situationally given elements for which the predicate phrase can potentially hold. In the comparative reading of the association with focus construction discussed in §1.1, there is a set of people giving presents or receiving presents, out of which a subset is formed, viz. the focalized constituent. In the *de* + DP and *de* + A constructions discussed in Sections 2.2 and 2.3, the focalized constituent is included in, i.e. is a subset of, the inclusive *de* + DP or *de* + A set. In all three constructions, explicit focalizing devices are used: superlatives, ordinals, *only* or a comparable construction, the cleft construction, noun ellipsis, a relative clause or a comparable construction. They serve to create a set of alternatives on which they perform exhaustive identification.

Kiss argues that there is variation in the feature content of identificational foci: the identificational focus can be specified for the positive value of the feature [contrastive]. Whereas the identificational foci in the three constructions discussed in the previous section are not necessarily positively specified for the feature [contrastive], I will claim in the next section that non-modal infinitival relatives are licensed by a [+contrastive] identificational focus.

4. Contrastive identificational focus

In the previous section I showed that, according to Kiss (1998), an identificational focus involves two operations, viz. the identification of a subset of a relevant set, and the exclusion of the complementary subset. The latter operation ensures that identificational focus expresses exhaustive identification. In Kiss' view, exhaustive identification can be expressed by a constituent preposed into Spec,FocusP, as in the Hungarian examples (30) and (34) or the English examples (31–32) of a cleft, or by an explicit focalizer such as *only* in (33). Kiss argues that the identificational focus may involve the feature [+contrastive] or not. Kiss shows that the notion of contrast is a linguistically relevant phenomenon (see also Molnár 2001). In many languages contrastive foci are moved into a sentence-initial position in syntax. In Hungarian, however, an identificational focus does not need to involve the feature [+contrastive] to be moved to a sentence-initial position.

Kiss considers an identificational focus [+contrastive] if it operates on a closed set of entities whose members are known to the participants of the discourse (cf. also Szabolcsi & Zwarts 1993). In this case, the identification of a subset of the given set also identifies the contrasting complementary subset, as in (35):

(35) a. I heard you invited John and Mary.
b. I only invited John.

In Kiss' view, a non-contrastive identificational focus operates on an open set of entities. This type of focusing is [–contrastive] because the identification of the subset for which the predicate holds does not result in the delineation of a complementary subset with clearly identifiable elements, as in (36):

(36) a. Who wrote War and Peace?
b. It was Tolstoy who wrote War and Peace.

In the previous section I associated an identificational focus interpretation of the DP with the presence of a superlative adjective, an ordinal or 'only' as the modifier of the DP. These adjectives are all scalar. In the introduction to this paper, it was shown that superlatives or equivalent modifiers license non-modal infinitival relatives. The relevant examples are repeated below for convenience:

(37) He was the youngest child to have had that operation at that time.
(38) John is the only man to really know her.
(39) The first person to have been killed by an electric chair is William Lelmer.
(40) The last person to have been seen with her was Robert Wood.

Non-modal infinitival relatives can also depend on a head noun modified by *rare* and *few*.[10] These are also scalar:

10. Bhatt (1999, 2006) also mentions *many* and numerals (in collocation with *one of the*, cf. fn. 3) as licensors of non-modal infinitival relatives:

(i) When Revlon Chairman Ronald Perelman recently hinted that he might try to acquire an industrial or manufacturing company, one of the **many** stocks to wiggle upward was Allied-Signal.

(ii) Alan Greenberg, chairman of Bear Stearns, one of the **five** dealers to curtail its program trading, said that if the market's course has been smoother in the past two weeks, it was only "a coincidence", and not a result of the pullback.

On the Internet I found relatively few examples like these, which suggests that they are rather marginal, but it could be argued that in collocation with *one of the* numerals or adjectives (see fn. 17) come close to superlatives.

(41) He has been awarded two different Nobel Prizes in physics, one of the rare people to have this honor.

(42) He is among the few people to have played in World Cup finals as a player and as a coach.

All adjectives licensing non-modal infinitival relatives are scalar in a special way. They represent the end of a scale. I claim that in the case of non-modal infinitival relatives we are dealing with an identificational focus with the feature [+contrastive]. Since superlatives and equivalent modifiers represent the end of a scale, a complement set consisting of members that represent a still higher or lower value on the scale can naturally be excluded as non-existing. Example (43), which repeats example (12), taken from Bhatt (1999, 2006), asserts that there is no telescope built in the 9th century that is more expensive than the one that Joan gave to Mary, (44) that there is no other cyclist than Indurain who has won two consecutive doubles Giro-Tour, (45) that no man has walked on the moon before Armstrong, (46) that no man has won both the Giro D'Italia and the Tour de France in the same year after Pantani, and (47) that almost no one else has owned the single. In all these cases, a complement set is thus excluded:

(43) Joan gave Mary the most expensive telescope to be built in the 9th century.
(44) Indurain is the only cyclist to have won two consecutive doubles Giro-Tour.
(45) Neil Armstrong was the first man to have walked on the moon.
(46) Pantani was the last man to have won both the Giro D'Italia and the Tour de France in the same year.
(47) I am one of the rare people to have owned this single.

In semantic descriptions of superlatives and comparable modifiers, superlatives are often presented as degrees and compare entities having the property expressed by the superlative to a different extent. So, (48) is taken to mean that John is taller than all other boys that I have seen. But besides this positive contribution to a sentence, superlatives also provide a negative contribution to the sentence. Sentence (48) also means that I have never seen a boy who is taller than John:

(48) John is the tallest boy that I have seen.

I propose that if the positive contribution is the assertion and the negative contribution the entailment, we are dealing with a simple identificational focus. A set is created which is an exhaustive subset of a set of elements of which the predicate phrase can potentially hold, boys that I have seen and which are tall to some extent. I propose furthermore that if the negative contribution is the assertion and the positive contribution the entailment, we are dealing with a contrastive identificational focus. The negative part of the meaning of the superlative explicitly excludes a contrasting complementary

subset, which consists of members that represent a still higher or lower value on the scale than the superlative.[11,12]

If the negative part of the meaning of the superlative is the assertion, a negative polarity item can be used, such as *ever*, which is licensed by the negative assertion:

(49) John is the tallest boy that I have ever seen.

I claim that a non-modal infinitive can be used instead of a tensed relative clause only if the negative part of the meaning of the superlative is the assertion. There has to be an explicit contrast with a complement set, i.e. a potential complement set consisting of members that represent a still higher or a still lower value has to be explicitly excluded. As (50) shows, negative polarity items such as *ever* can also be used with infinitival subject relative clauses, which supports the claim that these are licensed by the negative part of the meaning of superlatives and equivalent modifiers, i.e. by the negative assertion:

(50) You're the first person to have ever asked that question.

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11. In the negative reading, Fauconnier (1980), Linebarger (1980, 1987) and Giannakidou (1997) analyze the negative part of the meaning of the superlative as the negative implicature of the assertion, which would then only consist of the positive part of the meaning of the superlative. Following Yoshimura (2007) I will use the notion 'entailment' instead of 'implicature', and I will consider the positive part of the meaning of the superlative in (49) as the entailment, see fn. 12. De Swart (1998), who clearly explains the difference between the notions of presupposition, entailment and implicature, defines Grice's (1975) notion of implicature as a non-logical inference, which comes about as a result of embedding the statement in a particular conversational context. As such, implicatures can typically be cancelled or suspended without generating a contradiction. De Swart defines entailments as a strong form of implication. They cannot be cancelled or suspended without generating a contradiction.

12. Heycock (2005) gives the definition in (ii) of sentence (i) containing a superlative. In this definition g and k are degrees, $g > k$. Parts *a* and *b* form the positive contribution to the sentence and c forms the negative contribution (cf. Giannakidou 1997: 126, who analyzes *c* as a negative implicature, see fn. 11):

(i) Anna Karenina is the longest book that Tolstoy wrote.
(ii) a. Anna Karenina is g long.
b. All books x other than Anna Karenina that Tolstoy wrote are such that there is a degree k such that the degree of x's length does not exceed k
c. ¬ [Tolstoy wrote a book other than Anna Karenina g long]

Instead of *c* I would rather like to propose *c'*:

c′. ¬ [Tolstoy wrote a book other than Anna Karenina ≥ g long]

I propose that if *a* and *b* are the assertion and if *c'* is the entailment, we are dealing with an identificational focus. If *c'* is the assertion and if *a* and *b* are the entailment, we are dealing with a contrastive focus.

(51) He is the only person ever to have escaped Alcatraz.

Evidence for the claim that the negative assertion of the superlative or comparable modifiers licenses the non-modal infinitive comes from the fact that with ordinals other than the superlative ordinals *first* or *last* a non-modal infinitive cannot be used:[13]

(52) *He is the seventh man to have captured that title multiple times.

Ever cannot be used with non-superlative ordinals either:

(53) *He is the seventh man who has ever said such a thing.

This suggests that in order to be able to license non-modal infinitives, ordinals must have the feature [+contrastive], and more specifically must exclude a complement set consisting of members that represent a still higher or lower value by virtue of the negative assertion that is part of their meaning, and must thus be superlative ordinals (*first* and *last*). In Section 2, I discussed three constructions in which the adjective does not necessarily have to be [+contrastive]. In these constructions non-superlative ordinals can also be used, as exemplified by the French example (54), cf. (18):

(54) De tous les livres de Zola, je préfère le troisième.
'Of all of Zola's books, I prefer the third.'

I have claimed that in the three constructions discussed in Section 2, the focus simply can be an identificational, i.e. non-contrastive, focus, whereas non-modal relatives are licensed by a special type of identificational focus, a [+contrastive] identificational focus, by means of the negative assertion associated with the contrastive focus. This is supported by the fact that, besides non-superlative ordinals, there are other focalizing elements licensing some of the constructions in French discussed in Section 2, which

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13. Geisler (1995) distinguishes three groups of licensors of non-modal infinitives: adjectives denoting the extreme end of a scale (such as superlatives), items denoting uniqueness (such as *only*) and adjectives denoting an ordinal concept such as 295th in the example (i), which Geisler took from a live radio commentary:

(i) Dreadnought is the two hundred and ninety-fifth submarine to be launched at Barrow.

In all other examples Geisler gives, however, the ordinal is *first* or *last*, which suggests that (i) is a very marginal example (see also fn. 4). Bhatt (1999, 2006) also almost exclusively provides examples in which the ordinal is *first* or *last*. In (i) the ordinal is a very high number, which might account for the use of the infinitival relative in this case: it marks an extreme end of a scale. This might also explain why there are speakers who find (ii) acceptable: 'this man was one of the first to have done this, there was almost no one before him who stepped on the moon':

(ii) Buzz Aldrin is the second man to have stepped on the moon.

do not license non-modal infinitives. These are "nominalized" adjectives such as color adjectives and the demonstrative pronoun *celui*:[14,15]

(55) *Je préfère la noire à avoir coûté 30 euros.
I prefer the black to have cost 30 euros

(56) *Celui à avoir perdu a payé.
the one to have lost has paid

We are dealing here with identificational foci, but not with [+contrastive] identificational foci in the sense described above.[16] Therefore non-modal infinitival relative clauses are not licensed in (55–56).

In this section, I have claimed that non-modal infinitival relatives are licensed by a contrastive identificational focus that explicitly excludes a complement set consisting of members that represent a still higher or lower value, which is expressed by a negative assertion. In the next section, I will argue that the negative assertion makes it possible to relate the non-modal infinitival relatives to the modal ones discussed in the introduction to this paper.

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14. In French, non-modal infinitival relatives are licensed by adjectives that represent the end of a scale, just as in English. Just as in English, negative polarity items are also licensed in these contexts in French (see (i)):

(i) Il est le soliste le plus jeune à avoir jamais joué avec cet orchestre.
'He is the youngest soloist to have ever played with this orchestra.'

(ii) Armstrong fut le premier à avoir marché sur la lune.
'Armstrong was the first to have walked on the moon.'

(iii) Suis-je le seul à avoir ce problème?
'Am I the only one to have this problem?'

(iv) Il est un des rares à posséder cette compétence.
'He is one of the rare people to have this competence.'

15. In Section 6, it will be shown that the demonstrative pronoun can be followed by a non-modal infinitival relative clause. However, I will argue that the infinitival clause is not licensed by the demonstrative pronoun, but by another focalizing element.

16. This is also supported by the fact that negative polarity items are not licensed in these contexts:

(i) *Son nom restera à jamais associé à celui
her name will be forever associated to the one

du second personnage qu'elle a jamais interprété.
of the second personage that she has ever interpreted.

5. Non-veridicality

In the previous section, I claimed that non-modal infinitives are licensed by a contrastive identificational focus explicitly excluding a complement set. More evidence for the claim that it is this negative meaning that is responsible for the licensing of non-modal infinitival relatives comes from the Romance languages. In these languages either an indicative or a subjunctive can be used in a tensed relative clause after a superlative or an equivalent modifier (Carlsson 1969), as exemplified by the following French sentences:

(57) C'est le dernier livre qu' il a écrit.
this is the last book that he has.IND written
(= until now, i.e. comparison with all books that he has written before this one)

(58) C'est le dernier livre qu' il ait écrit.
this is the last book that he has.SUBJ written.
(= ever, i.e. comparison with an empty set of books written after this one: he has never written or will never write another book in his life after this one)

After non-superlative ordinals, only the indicative can be used:[17]

(59) C'est le troisième livre qu'il a /*ait écrit.
'This is the third book that he has.IND/has.SUBJ written.'

Farkas (1985) suggests that a negative existential is involved in sentences containing superlatives and associated modifiers and that this negative existential is responsible for the

17. Grevisse (1980) observes that in literary texts the subjunctive is also used in a relative clause with a head noun modified by a non-superlative adjective preceded by 'one of' or with a head noun preceded by 'all' (cf. fn. 10):

(i) C'est une des grandes erreurs qui soient parmi
it is one of the big errors that are.IND among
les hommes. (Molière, Dom Juan)
the men
'This is one of the big human errors that exist.'

(iii) Tout le ressentiment qu'une âme puisse avoir (Molière, Dom Garcie)
all the grateful memory that a soul may.IND have
'all the gratitude that one can have'

Delibes (1920) associates cases like these to the superlative construction and similarly to what I propose in this paper, relates the use of the subjunctive in the relative clause to the presence of a negation in the meaning of the superlative ('He is the wisest man that has ever lived' being equivalent to 'There has never been a man wiser than he').

possibility of using subjunctive relatives in such cases. I claim that the head of the indicative relative clause is a non-contrastive identificational focus, which means in my analysis that the positive part of the meaning of the superlative or comparable modifiers is the assertion and the negative part the entailment. I claim furthermore that the head noun modified by the subjunctive clause is a [+contrastive] identificational focus, which means that the negative part of the meaning of the superlative or equivalent modifiers is the assertion and the positive part the entailment. According to Kampers-Manhe (1991), French non-modal infinitival subject relatives can only replace subjunctive sentences, but not indicative sentences:[18]

(60)

C'est	la	femme	la	plus	âgée	à	avoir	eu	un	enfant.	
this is	the	woman	the	most	old	to	have	had	a	child	

'She is the oldest woman to have given birth.'

(61)

C'est	la	femme	la	plus	âgée	qui	ait	eu	un	enfant.	(= 60)
this is	the	woman	the	most	old	who	has.SUBJ	had	a	child	

(62)

C'est	la	femme	la	plus	âgée	qui	a	eu	un	enfant.	(≠ 60)
this is	the	woman	the	most	old	who	has.IND	had	a	child	

In the French example (63), a non-modal infinitival relative clause and a subjunctive are used in coordination, which also suggests that there is a relation between the two:

(63) La Douane de mer était le premier monument à l'accueillir sur cette Terre et Marie était la première femme qu'il eût jamais aperçue. (Jean d'Ormesson, *La Douane de mer*)

'The sea customs service was the first monument to receive him on this Earth and Mary was the first woman that he had.SUBJ ever seen.'

Sentence (63) also shows that, just like non-modal infinitival relatives, the subjunctive can be combined with the negative polarity item *ever*. I have argued that non-modal infinitival relatives and *ever* are licensed by the negative assertion that is part of the meaning of the superlative. Giannakidou (1997) shows that, in Greek, polarity items are not only licensed by negative operators, but also by other operators such as modal verbs, disjunctions, interrogatives or the future tense. Giannakidou calls these operators non-veridical items. An operator is non-veridical iff, *Op p* being true, *p* (=arbitrary proposition) is not necessarily true. *Paul wants Maria to come*, containing a modal verb as operator, does not necessarily entail that *Maria comes*. Averidical operators are a special subset of the non-veridical operators. In the case of averidical

18. See also Brunot (1922: 743), who states that in French an infinitival complement can be used after the adjectives that can be used with a subjunctive complement, such as *first*, *last* or *only*.

operators, *Op p* is true if *p* is not true. Negative operators are typical examples of averidical operators.

Giannakidou argues that, in Greek, polarity items are licensed, among others, by superlatives, because of the negative part of their meaning, which she analyzes as a negative implicature (but which I analyze as the assertion, see fn. 11 and 12). She shows that in Greek, but not in English, 'only' does not license polarity items. She argues that although there is a negative implicature associated with *only*, *only* is at the same time a veridical operator: *only Theodora saw Roxanne* implies that *Theodora saw Roxanne*. This shows, according to Giannakidou, that the non-veridicality condition, which requires that polarity items be licensed by a non-veridical operator, is stronger than the negative implicature in Greek. The negative implicature does not suffice for licensing of polarity items in Greek. Although English *only* is also a veridical operator with a negative implicature, the negative implicature suffices to license polarity items, in Giannakidou's view.

Yoshimura (2007) shows that in Japanese 'only' is expressed either by *-dake*, which has an 'affirmative' flavor or by *-shika*, which has a 'negative' flavor. Yoshimura proposes that *-dake* asserts an affirmative proposition and entails a negative one, while *-shika*, just like *only* in English (Horn 2002), asserts a negative proposition and entails a positive one.[19] Since the meaning of *-dake* on the one hand and *-shika* and English *only* on the other contains a positive and a negative part, they are all both a veridical and a non-veridical operator at the same time, but the strength of the positive or negative contribution varies, depending on what is asserted and what is entailed. Greek 'only' seems to be like *-dake*, whereas English *only* resembles *-shika*. Greek superlatives license negative polarity items, so that the negative contribution to their meaning must be the assertion.

In the previous section I have proposed that superlatives and comparable modifiers are polysemous. They have a positive flavor if they assert a positive proposition and

19. Yoshimura illustrates the difference between *-dake* and *-shika* with examples such as (i) and (ii):

(i) Ie-no roon-dake zeikin menjo da.
'Only home loans are tax-deductible.'
(Asserted) Home loans are tax-deductible.
(Entailed) No other loans besides home loans are tax-deductible.

(ii) Ie no roon-shika zeikin menjo dewa-nai.
'Only home loans are tax-deductible.'
(Asserted) No other loans besides home loans are tax-deductible.
(Entailed) Home loans are tax-deductible.

entail a negative one, in which case they function as identificational foci, and they have a negative flavor if they assert a negative proposition and entail a positive one, in which case they function as contrastive foci. I have claimed that if the negative contribution is the assertion, superlatives and equivalent modifiers license non-modal infinitival relatives, subjunctive relative clauses (e.g. in Romance) and negative polarity items like *ever*. If the positive contribution is the assertion, superlatives and comparable modifiers do not license non-modal infinitival relatives, subjunctive relative clauses, and negative polarity items, but only indicative relative clauses.

The notion of non-veridicality makes it possible to establish a relation between non-modal infinitival relatives and the modal ones distinguished in the introduction to this paper. In Bhatt's (1999, 2006) study of infinitival relatives, the non-modal ones and the modal ones seem to be totally unrelated. Giannakidou shows that, in Greek, polarity items are licensed, among others, by the negative part of the meaning of superlatives and by (deontic or epistemic) modals. Modals are non-veridical operators and negation is an averidical operator, a special subcase of non-veridical operators. This means therefore that both non-modal and modal "bare" infinitives are licensed by (implicit) non-veridical operators.

In the previous section, I have interpreted a negative assertion as part of the meaning of superlatives and equivalent modifiers as a contrastive focus: a set is contrasted with a complement set. In the next section, I will argue that there is also syntactic support for the claim that non-modal infinitival relatives are licensed by a (contrastive) focus.

6. Movement to FocusP

Kiss considers identificational focus to be semantically an operator expressing exhaustive identification and syntactically a constituent preposed into the specifier position of a functional projection, FocusP. Preposing can occur in syntax or at LF. In this section, I will discuss several cases in which the head noun modified by a non-modal infinitival subject relative is preposed either in syntax or at LF.

Kiss shows that in Hungarian the whole focalized constituent moves to the Focus Phrase, as witnessed by (64):

(64) Mari [$_{\text{FocusP}}$ egy kalapot [$_{\text{IP}}$nézett ki magának]].
Mary a hat picked out herself.to
'It was a hat that Mary picked for herself.'

In this section, I will give some arguments for the assumption that with non-modal infinitival relatives the superlative or comparable modifiers can move alone to a focus position.

6.1 Adverbs

Bhatt (1999, 2006) shows that instead of (65) it is also possible to use (66), with a similar meaning, although Bhatt observes that speakers find (66) degraded.[20] Bhatt uses this pair of sentences as an argument for a reconstruction analysis. In (65) the constituent *first boy* and in (66) *boy* have been raised from inside the infinitival relative clause in syntax (Kayne 1994), and undergo Reconstruction into the relative clause at LF:

(65) the [first boy]$_i$ to t_i climb Mount Everest
(66) the [boy]$_i$ to t_i climb Mount Everest first

Both in (65) and (66), *first* adjoins at LF to the relative clause (cf. Szabolcsi's (1986) analysis of association with focus, see §1.1):

(67) the [$_{CP}$ first$_i$ [$_{CP}$ to t_i boy climb Mount Everest]]
(68) the [$_{CP}$ first$_i$ [$_{CP}$ to boy climb Mount Everest t_i]]

I propose that *first* in (65) does not originate in the relative clause. Only the noun does:

(69) the first [boy]$_i$ [$_{CP}$ to t_i climb Mount Everest]

I assume that both in (65) and in (66) *first* moves at LF to a Focus Phrase dominated by DP (see, a.o., Aboh 2003):[21]

(70) [$_{DP}$ the [$_{FocusP}$ first$_i$ [$_{AP}$ t_i [$_{NumP}$ boy$_j$ [$_{CP}$ to t_j climb Mount Everest]]]]]
(71) [$_{DP}$ the [$_{FocusP}$ first$_i$ [$_{NumP}$ boy$_j$ [$_{CP}$ to t_j climb Mount Everest t_i]]]]

According to Kiss, movement to FocusP can take place at LF if the identificational focus feature is visible/audible in PF anyway. In the case of *only* in English the identificational focus feature is morphologically marked, viz. by *only* itself. Since the identificational focus feature is also overtly expressed in the case of *first*, its movement to a DP-internal FocusP does not have to take place in syntax.

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20. One of the reviewers observes that there seems to be a difference in interpretation between (65) and (66). (65) can be uttered if no other boy has climbed Mt. Everest, but this seems not to be possible in (66).

21. As observed by Bhatt, speakers find (66) less acceptable than (65). This might follow from the fact that, although in (71) the non-modal infinitival relative is syntactically licensed by the raised ordinal, *first* does not have the negative interpretation required to license the relative clause (see fn. 20).

6.2 Clefts

In Italian (72), but not in English (73) or French (74), a cleft is able to license non-modal infinitival relatives.[22] In Kiss' analysis, a clefted constituent moves to or is base-generated in the specifier of a FocusP in syntax:

(72) È stato [$_{\text{FocusP}}$ Gianni] a darmi la chiave.
is been Gianni to give-me the key
'It was Gianni who gave me the key.'

(73) *It was John to have given me the key.
(74) *C'est Jean à m'avoir donné la clé.

The distinction between Italian, English and French clefts recalls the distinction between 'only' in Greek and English (see §4). In Greek 'only' seems to assert an affirmative proposition, whereas in English *only* asserts a negative proposition, which would account for the fact that in English but not in Greek 'only' licenses negative polarity items.

A similar interpretation can be given of the data in (72–74). In English and French, clefts simply serve to identify: they assert an affirmative proposition and entail a negative one. In Italian clefts, a negative proposition is asserted and a positive one entailed, which licenses infinitival relatives. In Italian, the cleft is a contrastive focus. The negative assertion explicitly excludes a complement set.

Why should there be such a difference between Italian clefts on the one hand and English and French clefts on the other? A contrastive focus is semantically stronger than a non-contrastive, i.e. a normal identificational focus, because besides its identificational interpretation it explicitly excludes a complement set, which is expressed by the negative assertion. Kiss shows that in Italian the information focus stands behind the V and that the identificational focus is in a preverbal position:

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22. Just as in English and French, in Italian non-modal infinitival relative clauses are licensed by adjectives that represent the end of a scale:

(i) Il più giovane a raggiungere la cima è stato un giovane di 11 anni.
'The youngest one to reach the top was an 11 year old child.'

(ii) Il primo a entrare è il primo a uscire.
'First in, last out.'

(iii) Non sono il solo a pensare così.
'I am not the only one to think so.'

(iv) Gianni è tra i pochi a aver letto il libro.
'Gianni is one of the few to have read the book.'

(75) Il vaso, l' ha rotto Maria. (= information focus)
the vase it has broken Maria
'Maria has broken the vase.'

(76) **Maria** ha rotto il vaso. (= identificational focus)
'It is Maria who has broken the vase.'

Besides these options, a third case is possible, the cleft, in which the clefted constituent is moved to Spec,FocusP:

(77) È stata Maria che ha rotto il vaso. (= contrastive focus)
is been Maria who has broken the vase
'It was Maria who broke the vase.'

The cleft is semantically the strongest option. It expresses a contrast by means of a negative assertion which excludes a complement set. This is why the Italian cleft can license non-modal infinitival relatives.

In English (and French) there are only two options.[23] The information focus is in a preverbal position. The identificational focus is expressed by the cleft.[24] There is no special construction for the contrastive focus:

(78) Maria has broken the vase. (= information focus)
(79) It is Maria who broke the vase. (=identificational or contrastive focus)

I claim that because the cleft in English (and French) is not explicitly contrastive, i.e. does not explicitly exclude a complement set, a non-modal infinitival relative cannot be used.

6.3 Preposed quantificational adjectives

Whereas in Hungarian a syntactically preposed constituent is not necessarily contrastive, in many of the languages Kiss discusses it is. In French, preposed *rare* or *numerous* license the use of infinitival subject relatives after a demonstrative pronoun or a noun:

(80) Nombreux sont ceux à avoir voulu tenter l'expérience.
numerous are those to have wanted try the experiment
'Those who have wanted to try the experiment are numerous.'

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23. See also Belletti (2005), in which differences between answering strategies among Italian, French and English speakers are discussed. According to Belletti, whereas in Italian an information focus expressed by a postverbal subject (*È partito Gianni* 'Gianni left') is used to answer the question 'Who left?', in French a cleft or a truncated cleft is used (*C'est Jean (qui est parti)* 'It is Jean (who left)'), and in English the SV order is used (*John left*), cf. fn. 24.

24. Instead of a cleft, a preverbal subject with a pitch accent on the subject can also be used, expressing both an identificational and a contrastive focus.

(81) Rares sont ceux à avoir pu l'observer en liberté.
rare are those to have been-able to it-observe in liberty
'Those who have been able to see it living under natural conditions are rare.'

(82) Rares sont les personnes à avoir les trois quarts des produits.
rare are the persons to have the three quarters of-the products
'The persons that have three quarters of the products are rare.'

The preposing of the quantificational adjective seems to play an important role in the licensing of *à* + infinitive, as witnessed by the ungrammaticality of sentences (83–85) in which the quantificational adjective has not been preposed:[25,26]

(83) *Ceux à avoir voulu tenter l' experience sont nombreux.
those to have wanted try the experiment are numerous

(84) *Ceux à avoir pu l' observer en liberté sont rares.
those to have could it observe in liberty are rare

(85) *Les personnes à avoir les trois quarts des produits sont rares.
the persons to have the three quarters of-the products are rare

When a finite relative clause is used instead of *à* + infinitive, sentences (83–85) become grammatical, as witnessed by (86–88), which shows that it is the movement of the quantificational adjectives to the specifier of FocusP in syntax that licenses the use of *à* + infinitive in (80)–(82):

25. Half of the French speakers that one of the reviewers consulted accepted sentences (83)–(85). I have not found any example in the database of French literary texts Frantext, however, and almost no example by searching the Internet with Google.

26. There are native speakers of French who accept the use of an infinitival relative clause after *un de ceux* 'one of those', cf. fn. 3. On the Web, but not in Frantext, I found examples like (i). Interestingly, in most of the examples that I found, the relative clause contains a superlative, as in (ii), which suggests that a negative assertion is involved in the licensing of the infinitival relative clause (in (ii), there is almost no one who has better illustrated this principle):

(i) Mozart fut un de ceux à introduire la technique cyclique
Mozart was one of those to introduce the technique cyclic
dans la musique classique.
in the music classical
'Mozart was one of those who have introduced the cyclic technique in classical music.'

(ii) Il est un de ceux à avoir le mieux illustré ce principe.
he is one of those to have the best illustrated this principle
'He is one of those who have best illustrated this principle.'

(86) Ceux qui ont voulu tenter l'expérience sont nombreux.
'Those who have wanted to try the experiment are numerous.'

(87) Ceux qui ont pu l'observer en liberté sont rares.
'Those who have been able to observe it living under natural conditions are rare.'

(88) Les personnes qui ont les trois quarts des produits sont rares.
'The persons who have three quarters of the products are rare.'

I contend that the movement of the quantificational adjectives marking the end of a scale to FocusP in syntax in (80–82) is associated with a special semantic effect. The focus has a contrastive interpretation, asserting that there is (almost) no one or nothing else (not) having the property under consideration, which licenses the infinitival clause.

6.4 Non-inverted copula constructions

The last case of anteposition to the specifier of FocusP licensing non-modal infinitival subject relatives is provided by non-inverted copula constructions, again in French. Examples are given in (89)–(95):

(89) Elles sont trois à avoir remporté les premiers prix.
they are three to have taken the first prizes
'Three have taken the first prizes.'

(90) Les membres actifs sont seuls à avoir le droit de vote.
the members active are only to have the right of vote
'The active members are the only ones to have the right to vote.'

(91) Ils sont plusieurs à avoir joué le jeu.
they are several to have played the game
'Several have played the game.'

(92) Ils sont rares à avoir des enfants.
they are rare to have INDEF.ART children.
'Few of them have children.'

(93) Vous avez été des milliers à avoir réagi.
you have been INDEF.ART thousands to have reacted
'Thousands of you have reacted'.

(94) Ils sont 30 pour cent à fréquenter ce type d' école.
they are 30 percent to go to this type of school
'30 percent go to this type of school.'

(95) Combien sont-ils à savoir la réponse?
how-many are they to know the answer
'How many are those who know the answer?'

The use of *à* + infinitive differs from the other cases discussed so far in that the class of quantifiers that licenses *à* + infinitive is larger. Even cardinal numbers and quantifiers such as *plusieurs* 'several' license the use of *à* + infinitive, when they are used as a predicate.

Apparently, in (89–95), the infinitival clause seems to be the complement of the predicate, just as in (96):

(96) Elle est apte à faire ce travail.
'She is able to do this work.'

The following sentences show, however, that the quantificational predicate can also be used in combination with a finite relative clause instead of an infinitival clause:

(97)	Ils	sont	nombreux	qui	poursuivent	une	bonne	carrière	politique.
	they	are	numerous	who	pursue	a	good	career	political

'Numerous are the people who pursue a good political career.'

(98)	Les	spécialistes	sont	rares	qui	se	risquent	à	l'	analyser.
	the	specialists	are	rare	who	themselves	risk	to	it	analyze

'Rare are the specialists who dare analyze it.'

(99)	Ils	sont	des	milliers	qui	attendent	un	nouveau	foyer.
	they	are	INDEF.ART	thousands	who	wait	a	new	home

'Thousands of them wait for a new home.'

In (96), however, the infinitival clause cannot be replaced by a finite relative clause:

(100)	*Elle	est	apte	qui	fait	ce	travail.
	she	is	capable	who	does	this	work

Also, pseudoclefts show that *apte à faire ce travail* in (96) is a constituent, but that the quantificational predicate and the relative clause are not:[27]

(101)	Ce	qu'elle	est,	c'est	apte	à	faire	ce	travail.
	what	she	is	that is	able	to	do	this	work

'She is able to do this work.'

(102)	*Ce	qu'ils	sont,	c'est	rares	à	avoir	des	enfants.
	what	they	are	that is	rare	to	have	INDEF.	children

(103)	*Ce	qu'ils	sont,	c'est	nombreux	qui	poursuivent	une
	what	they	are	that is	numerous	who	pursue	a
	bonne	carrière	politique.					
	good	career	political					

27. I am grateful to one of the reviewers for having pointed this out to me.

Furthermore, whereas in (96) the infinitival clause introduced by *à* can be replaced by the clitic pronoun *y*, as (104) shows, this is not possible in combination with a quantificational predicate, as witnessed by the ungrammaticality of (105):

(104) Elle y est apte.
she therein is capable
'She is able to do it.'

(105) *Elles y sont trois/rares/nombreux/plusieurs.
they therein are three/rare/numerous/several

This suggests that the infinitival relative clause does not depend on the quantificational predicate, but depends on the pronoun or on the noun, just like the finite relative clause in (97–99). For (89–95), I propose the following analysis. The infinitival or relative clause is the complement of the determiner (Kayne 1994), with the noun raising to a sentence-initial position within the relative clause and subsequently moving to NumP:

(106) $[_{DP}$ les $[_{NumP}$ membres actifs$_i$ $[t_i$ à t_i avoir le droit de vote]]]

Besides being the complement of a determiner, as in (106), the relative clause can also be the complement of a pronoun:

(107) $[_{DP}$ ils [à avoir des enfants]]

The DP and the quantificational predicate form a small clause that is the complement of the copula:[28]

(108) sont $[_{SC}$ DP rares]
(109) sont $[_{SC}$ $[_{DP}$ ils [à avoir des enfants]] rares]

In Kayne & Pollock's (2001, 2005) analysis of stylistic inversion in French, the DP subject starts out as the specifier of a silent subject clitic that heads a larger DP. The lexical subject moves to a high position above IP, leaving the silent subject clitic in Spec,IP.

28. In French, quantifiers can function as predicates even in the absence of a non-modal infinitival relative clause:

(i) Ils étaient trois/plusieurs.
'There were three/several of them.'

(ii) Ils sont rares/nombreux.
'They are rare/numerous.'

(iii) Les enseignants l'ont essayé, mais ils sont seuls.
'The teachers have tried it, but they are the only ones.'

The (remnant) IP then moves leftward past the landing site of the subject, creating stylistic inversion:

(110) $[_{IP}$ Jean-SCL a téléphoné] →
Jean has telephoned

$[_{FP}$ $Jean_i$ F^0 $[_{IP}$ t_i-SCL a téléphoné]] →
$[_{GP}$ $[_{IP}$ t_i-SCL a téléphoné$]_j$ G^0 $[_{FP}$ $Jean_i$ F^0 t_j]]

I assume that the left periphery of the clause contains a high and a low TopP, which sandwich around a FocusP (Rizzi 1997). The DP in (108–109) moves to Spec,IP, which is followed by remnant movement of the small clause to the specifier position of FocusP. The infinitival clause moves out of the DP to the specifier position of the lower TopP (Rizzi 1997). This is followed by remnant movement of the DP to the specifier position of the higher TopP. The copula moves to the head of the higher TopP. This leads to the following configuration:

(111) $[_{TopP}$ ils $[_{Top^0}$ sont $[_{FocusP}$ rares $[_{TopP}$ à avoir des enfants …]]]]

The infinitival clause is licensed in this structure by a c-commanding constituent in the specifier position of FocusP.

The anteposition in syntax is associated with a contrastive interpretation of the focus, explicitly excluding a complement set. This case can be compared to the Italian cleft in (77):[29]

(112) È stato Gianni a darmi la chiave. (and not anyone else)
'It was Gianni who gave me the key.'

(113) Ils sont trois à le savoir. (and not any other number)
they are three to it know
'Three people know it.'

In French, a negative assertion seems thus to be associated with this construction, licensing the non-modal infinitival relative clause. This property relates the construction considered here to the other ones discussed in this paper.

29. One of the reviewers suggests an alternative and simpler account: the infinitival relative clause, which is the complement of the subject, is extraposed and ends up in a position where it is c-commanded by the quantifier. The reason why I propose the analysis in (111), however, is that a parallel can be drawn with the cleft-construction in Italian. Both in the analysis of the cleft construction that I presented in (31) and in the analysis in (111) a constituent raises to Spec,FocusP in syntax.

7. Conclusion

In this paper, I have claimed that non-modal infinitival subject relative clauses are licensed by a focalized head noun explicitly expressing a contrast with a complement set by means of a negative assertion, i.e. a contrastive focus (Kiss 1998). I have argued that all adjectives licensing non-modal infinitival subject relatives (such as superlatives, superlative ordinals, *only* and the quantificational adjectives *rare* and *few*) represent the end of a scale, so that a complement set consisting of members that represent a still higher or lower value on the scale can naturally be excluded.

Evidence for the claim that it is this negative assertion that is responsible for the licensing of non-modal infinitival subject relatives came from the Romance languages. In these languages either an indicative or a subjunctive can be used in a tensed relative clause after a superlative or equivalent modifiers. Non-modal infinitival subject relatives can only replace subjunctive, but not indicative sentences. I have followed Farkas (1985), who suggests that a negative existential is involved in sentences containing superlatives and comparable modifiers and that this negative existential is responsible for the possibility of using subjunctive relatives in such cases. I have claimed that the negative existential also licenses non-modal infinitival relative clauses.

I have argued that in some cases the negative existential may be asserted whereas in others it is entailed, which would account for the parametric variation between languages in the licensing of non-modal infinitival relatives in these constructions.

Furthermore, I have claimed that the contrastive interpretation of the focus is related to its movement in syntax or at LF to Spec,FocusP, a position in the left periphery of the clause or the DP.

I have shown that a unified account of the licensing of modal and non-modal infinitival relatives becomes possible with this approach of the licensing of non-modal infinitival relative clauses.I have argued that both non-modal and modal infinitives are licensed by (implicit) non-veridical operators (Giannakidou 1997). Modal verbs are non-veridical operators and negation, implicitly present in superlatives and equivalent modifiers, is an averidical operator, a special subcase of non-veridical operators.

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Sentential complementation of adjectives in French*

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The present paper provides a detailed study of clausal complementation of adjectives in French. Dyadic adjectives selecting a clause as one of their arguments differ with respect to the syntactic realization of their complement; some adjectives introduce both non-finite and tensed complements (in the indicative or in the subjunctive), while others appear exclusively with tenseless complements. I propose to derive the syntactic realization of the complement from the semantic properties of the matrix adjective: depending on their meaning, adjectives select a specific ontological category (*proposition*, *event*, *action*), which is mapped to a particular projection in the syntax (see Rochette 1988). Apparent counterexamples are shown to involve either (i) mono-clausal structures due to complex predicate formation (for certain adjectives that allow only non-finite complements) or (ii) clauses that are not selected elements (arguments) but adjuncts ("impostor" adjectives).

1. Introduction: Complementation and the relationship between meaning and form

In French, three classes of adjectives can be distinguished on the basis of the types of sentential complements they introduce. Some adjectives allow the occurrence of infinitival complements and tensed complements—in the indicative like *certain* 'sure'

*This paper presents the salient points of my doctoral dissertation. Due to lack of space, some important features of clausal complementation of adjectives will be treated here somewhat in broad strokes. For a more exhaustive study, the reader is referred to Léger (2006). I would like to thank Denis Bouchard, Fernande Dupuis, Marie Labelle, France Martineau and Anne Rochette for their invaluable comments and for insightful discussions throughout the course of this research, as well as the audience at the *Workshop on the Formal Analysis of Adjectives* and three anonymous reviewers for their useful suggestions. This research was funded by the *Social Sciences and Humanities Research Council of Canada* (SSHRC) and the *Fonds pour la formation de chercheurs et l'aide à la recherche* (FCAR).

in (1), or in the subjunctive as *digne* 'worthy' in (2)—, whereas others, like *capable* 'able' in (3), appear exclusively with infinitival complements.[1]

(1) a. Jean est certain de venir.
Jean is sure to come.INF
'Jean is sure that he will come.'[2]

b. Jean est certain que Marie viendra / *vienne.
Jean is sure that Marie come.IND / come.SUBJ
'Jean is sure that Marie will come.'

(2) a. Ce livre n'est pas digne d'être lu.
this book NEG is NEG worthy to read.PSV.INF
'This book is not worthy of reading.'

b. Ce livre n'est pas digne qu'on le *lit / lise.
this book NEG is NEG worthy that we it read.IND / read.SUBJ
'This book is not worthy of reading.'

(3) a. Jean est capable de finir ce texte.
Jean is able to finish.INF that text
'Jean is able to finish that text.'

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1. In addition to selecting different types of complements (indicative, subjunctive, infinitival), adjectives also differ with respect to whether they appear in impersonal constructions or in personal patterns (or both). Only adjectives occurring in the personal patterns are treated here, that is, adjectives that select two arguments, one of which is a clausal complement. In Léger (2006), I provided a detailed account of the (im)possibility of an alternation impersonal constructions/personal patterns. I showed that the possibility for an adjective to appear in both structures is the exception rather than the norm. In fact, this "alternation" is regular only with two semantic classes of adjectives—the well-known class of *facile* 'easy' type of adjectives and the class of adjectives which are concerned with moral qualities. A few other adjectives such as *triste* 'sad', *certain* 'sure', etc. also have this property. To account for these facts, I proposed that adjectives which can participate in both types of constructions, except the *facile* 'easy' type of adjectives, share the property of being able to characterize concrete entities such as individuals and more abstract entities (*propositions*, *events*, *actions*). In personal patterns, the property denoted by the adjective is attributed to a concrete entity, while in impersonal constructions, it applies to an abstract entity. Adjectives of the *facile* 'easy' type, which participate in the well-known *tough* constructions, are an exception to this rule, the property denoted by these adjectives can only describe *actions*.

2. Abbreviations used in the glosses:

IND	indicative	PSV.INF	passive infinitive
INF	infinitive	REFL	reflexive pronoun
NEG	negation	SG	singular
PL	plural	SUBJ	subjunctive
PST.INF	past infinitive		

b. *Jean est capable qu'il finit / finisse ce texte.
Jean is able that he finish.IND / finish.SUBJ that text

In the numerous studies on complementation, of which the majority deals with verb complementation, it is widely held that the meaning of the matrix predicate not only determines (at least in part) the syntactic type of complements it can introduce, but also is responsible for the particular interpretation and characteristics of its complements (see among others Achard 1998; Ormazabal 1995; Portner 1992; Rochette 1988). Linguists working in the area of complementation have thus distinguished semantic classes of matrix predicates. In general, to establish classifications, two methods have been used. In one approach, linguists have investigated logical relationships holding between matrix predicates and their complements. Logical relationships are determined by negating the matrix predicate and observing the effects it has on the truth of the complement. The factive/non-factive distinction, originally discussed by Kiparsky & Kiparsky (1970), was identified this way.[3] Factives (4a) presuppose the truth of their complement. In contrast, non-factives (4b) do not carry such a presupposition: they are neutral with respect to the truth-value of their complement, which can be true as well as false.

(4) a. John knows that Mary came to the party. (Presupposition: Mary came to the party)
b. John thinks that Mary came to the party. (No presupposition)

Presuppositions induced by factives are preserved under negation and interrogation. Hence, the situations denoted by the complements in (5) are considered as facts, just as in the affirmative sentence in (4a).

(5) a. John doesn't know that Mary came to the party.
b. Does John know that Mary came to the party?

A cluster of distinct syntactic properties between predicates has been correlated to the factive/non-factive distinction. For instance, compatibility with a phrase headed

3. Other types of logical relationships, that is, truth-value implications, are proposed by Karttunen (1971a, b). This author opposes to the factive class three classes of predicates: implicatives (*manage*), IF-verbs (*cause*) and ONLY-IF-verbs (*be able*). The complements of these classes are said to be sensitive to negation: they do not have a truth-value which is independent from that of the matrix clause. This contrasts with complements of factives, which have a truth-value of their own: these complements are presupposed whether or not the main predicate is negated. In other words, complements of factives are completely insensitive to negation. It seems to be the case that, while factivity is relevant for predicates that select tensed complements, the different types of implicative relationships identified by Karttunen solely apply to predicates that select exclusively tenseless complements. I will not pursue any further the discussion of Karttunen's classification. I will focus my attention on factivity.

by *fact*,[4] possibility of replacement of complements by gerundial constructions and obligatoriness of the complementizer *that* are usually considered defining properties of factives. One phenomenon that has received much attention in the literature is the behavior of factives and non-factives with respect to long movement of *wh*-phrases (Cinque 1990; Hegarty 1990, 1992; Melvold 1991; Rizzi 1990; Rooryck 1992). While extraction of adjuncts out of complements of factives is prohibited (6a), it is permitted with non-factives (6b).

(6) a. Why_i did John know t_i that Mary repaired the car $*t_i$?
b. Why_i does John think t_i that Mary repaired the car t_i?

In (6a), involving factive *know*, movement of the adjunct *why* from inside the subordinate clause is blocked. Hence, only a matrix-question reading is available (*know why*, but not *repaired the car why*). This contrasts with (6b), involving non-factive *think*. In this case, the sentence is ambiguous: *why* can either constitute a question about the matrix clause (*think why*) or the embedded clause (*repaired the car why*).

Another method that has been frequently used to establish typologies of matrix predicates has been to group predicates into classes on the basis of kinship in meaning and to associate the complement of each class to a particular ontological category (abstract entity). Hence, in this kind of approach, predicates take a semantic category as one of their arguments. For instance, depending on the matrix predicate, the complement could denote a *state*, a *proposition*, a *process*, etc.[5] To account for the distribution of the different types of complements in (1)–(3), I will assume the existence of three major semantic categories (*proposition*, *event*, *action*), which are posited in Rochette (1988)—a study on sentential complementation of verbs in Romance languages, in particular in French—, and adopt the assumptions therein on their canonical lexical realization. Rochette (1988) proposes to distinguish three classes of main verbs, a classification borrowed from Long (1974): propositionals, emotives and effectives. A first

4. There is a group of factive predicates, such as *know* and *realize*, that are not compatible with *the fact that*. This is shown in (i).

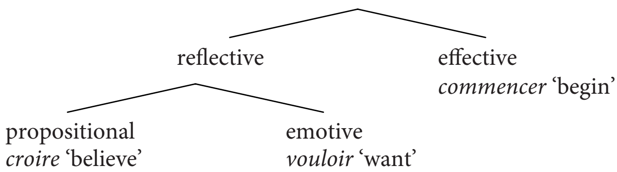
(i) a. *I know the fact that John has left.
b. *I realize the fact that Mary is sick.

These predicates are called "semi-factives" by Karttunen (1971a), since they can lose their factivity in some contexts, namely in hypothetical contexts (such as in conditional sentences). All of the semi-factive predicates identified by Karttunen (1971a) belong to the propositional class (they all pertain to cognitive processes). Factives of the emotive class are generally called "true factives" (see Hooper 1975; Hooper & Thompson 1973).

5. See in particular Asher (1993), Menzel (1976) and Peterson (1997) for taxonomies of semantic categories.

distinction is made between verbs that express judgments (reflectives that comprise propositionals and emotives) and verbs that are not concerned with judgments (effectives). Propositionals (verbs of stating, believing and knowing: *dire* 'say', *croire* 'believe', *savoir* 'know') express truth-value judgments, while emotives (psychological verbs and volition verbs: *regretter* 'regret', *vouloir* 'want') express subjective or personal judgments. Effectives (among which aspectual and movement verbs: *commencer* 'begin', *aller* 'go') describe the relationship of a subject with respect to the performance of an action, such as causality or potentiality. This classification is illustrated in (7).

(7) Classification of main verbs



Verbs belonging to each class select different types of complements. Reflective verbs can occur with tensed complements as well as with infinitival complements. While propositional verbs select indicative complements, emotive verbs appear with subjunctive complements.[6] As for effective verbs, they can only occur with infinitival complements. These selectional restrictions are illustrated in (8)–(10).

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6. In this type of analysis, *espérer* 'hope'/'wish', which selects an indicative complement, is considered as a member of the propositional class (ia), while *souhaiter* 'hope'/'wish', which governs a subjunctive clause, is considered a member of the emotive class (ib).

(i) a. Jean espère que Marie l'attend.
Jean hopes that Marie him wait.IND
'Jean hopes that Marie is waiting for him.'

b. Jean souhaite que Marie l'attende.
Jean hopes that Marie him wait.SUBJ
'Jean hopes that Marie will wait for him'.

Achard (1998: 251–253) discusses the difference in meaning between *espérer* and *souhaiter*, which is responsible for the indicative/subjunctive contrast. In his analysis, the distribution between the two moods is accounted for in terms of grounding (in a conceptualizer's conception of reality or in the mental space of the conceptualizing subject). While the indicative complement of *espérer* is viewed relative to its position in reality, the subjunctive complement of *souhaiter* only exists in the mental space of the conceptualizing subject. However, things are not as clear-cut as one would imagine at first glance, for there is linguistic variation concerning *espérer*. In fact, in some varieties of French, the two moods are possible with this verb.

(8) a. Jean croit avoir compris l'explication.
'John believes that he has understood the explanation.'

b. Jean croit que Marie a compris l'explication.
'John believes that Mary has understood the explanation.'
(=(6) in Rochette 1999)

(9) a. Jean souhaite partir.
'John wishes to leave.'

b. Jean souhaite que Marie parte demain.
'John wishes that Mary leave tomorrow.' (=(5) in Rochette 1999)

(10) a. Jean commence à écrire son livre.
'John begins to write his book.'

b. *Jean commence qu'il écrit/écrive son livre.
'*John begins that he writes/write his book.' (=(4) in Rochette 1999)

In order to account for the selection of these distinct types of complements, Rochette (1988) develops an analysis couched in terms of semantic selection (Grimshaw 1979; Pesetsky 1982): she distinguishes three semantic categories (*proposition*, *event*, *action*) and proposes that each of the three different semantic classes of verbs (propositional, emotive, effective) selects a specific semantic category as its argument, which is realized in syntax by a projection of a particular category. Propositional verbs (that appear with tensed complements in the indicative or infinitival complements) select a *proposition*, which is realized in syntax as a COMP projection. Emotive verbs (that occur with tensed complements in the subjunctive or infinitival complements) select an *event*, which is realized in syntax as an INFL projection. Effective verbs select an *action*, which is realized as a projection of the V category, thereby accounting for the fact that they can only introduce tenseless complements.[7] An important consequence of Rochette's proposal is that not all infinitival complements have the same syntactic structure.

7. The three semantic categories posited in Rochette (1988) can be defined as follows. A *proposition* corresponds to a sentential complement, having tense or aspectual features, whose truth-value can be asserted or denied independently of that of the matrix clause (by having recourse to *and it's true/but it's false*). An *event* corresponds to a sentential complement, having tense or aspectual features. This type of complement refers to a distinct situation than the one denoted in the matrix clause. An *action* corresponds to a verbal predicate that bears no tense features and whose truth-value is completely dependent upon the higher tensed predicate. Complements denoting *propositions*, *events* and *actions* present differing properties, a few of which are discussed here (see Léger 2006 for a more detailed discussion of the characteristics distinguishing between the three semantic categories). Complements denoting *propositions* and *events* differ in a number of ways. For instance, a subset of propositional predicates allow their complement to be replaced by *oui* 'yes' or *non* 'no' (ia). None of the members of the emotive class has this property (ib).

This difference in level of structure accounts for the distinct properties of infinitival complements. A number of characteristics distinguishing infinitival complements of the three semantic classes of verbs are examined in Rochette (1988, 1990, 1999). For instance, properties of tenseless complements of effective verbs clearly set them apart from those of propositional and emotive verbs. Rochette argues that the particular characteristics exhibited by constructions with effective verbs (the impossibility of pronominalization of the infinitival complement, the impossibility of having a distinct tense modification for the infinitival complement and the higher predicate, etc.) show that they are monoclausal structures. She notes that restructuring (the possibility for a verb and its infinitival complement to form a complex predicate, which can be broadly defined as a construction that involves two or more predicational elements which acts as a single unit on the syntactic level) is limited to a subset of effective verbs.[8]

In this paper, the two types of semantic classifications discussed above will serve as a guide to the study of sentential complementation of adjectives. It will be shown that the semantic categories *proposition*, *event* and *action* and the factive/non-factive distinction account to a large extent for the characteristics of complements of adjectives. However, it will be seen that factivity fails in some cases to make the right predictions concerning properties of complements. I will argue that dominance, which is a more fundamental property than factivity (it encompasses the notion of factivity), accounts

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(i) a. Jean est certain / pense que oui / non. (Marie est malade.)
Jean is sure / think.IND that yes / no (Marie is sick)
'Jean is sure/thinks that this is the case/this is not the case. (Marie is sick.)'

b. *Jean est content / digne que oui / non. (Marie vienne.)
Jean is happy / worthy that yes / no (Marie come.SUBJ)

Furthermore, the propositional class includes all of the predicates that can select indirect questions (iia). *Wh*-complements are also allowed with emotive predicates (iib). However, in this case, the complements cannot be analyzed in terms of indirect questions; for example, in (iib), the *wh*-complement is interpreted as an exclamative (Grimshaw 1979).

(ii) a. John doesn't know if Mary went to the party.
b. It amazes me how tall John is.

The semantic category *action* can be opposed to the categories *proposition* and *event*. Properties exclusive to the complements denoting *actions* are discussed in Section 4.

8. The proposal provided by Rochette (1988) to account for the selectional restrictions of verbs bears resemblance to that of other authors. For instance, Wurmbrand (2003) establishes a classification that roughly corresponds to that of Rochette. In this study, four types of infinitival complements are distinguished: full clausal non-restructuring infinitives (CP), reduced non-restructuring infinitives (*v*P or TP), functional restructuring infinitives (the infinitive is the main predicate; it determines the thematic properties of the construction) and lexical restructuring infinitives (VP-layer, lacking functional categories such as Tense, Case, etc.).

more adequately for the characteristics of complements. In the subsequent sections, I will provide an overview of the major properties of the three semantic classes of adjectives that select sentential complements (propositionals, emotives, effectives), and examine the characteristics of "impostor" adjectives, which, at first glance, seem to take clausal complements as well.

2. Propositional adjectives

As defined in Section 1, propositional predicates are those that express truth-value judgments. Adjectives belonging to this class include *certain* 'sure', *conscient* 'aware', *confiant* 'confident' and *persuadé* 'convinced', which pertain to mental states of an individual, such as states of knowledge, consciousness and believing. In general, propositional adjectives introduce sentential clauses in the indicative as well as infinitival complements, which is accounted for by the fact that they select a *proposition*, that is, a full clausal complement.[9] Examples are given in (11).

(11) a. Jean est conscient d'être malade.
Jean is aware to be.INF sick
'Jean is aware that he is sick.'

b. Jean est conscient que Marie est / *soit malade.
Jean is aware that Marie be.IND / be.SUBJ sick
'Jean is aware that Marie is sick.'

Apart from *conscient* 'aware', all propositional adjectives are non-factive. Consider (12).

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9. It is well-known that, in certain Romance languages, direct interrogation and negation can induce the use of the subjunctive with predicates that normally introduce the indicative (Farkas 1992; Giorgi & Pianesi 1997; Lalaire 1998; Quer 2001). Thus, under direct interrogation (ia) and negation (ib), *certain* 'sure' allows both the indicative and the subjunctive in its complement.

(i) a. Jean est-il certain qu'il ait mis / a mis l'argent dans
Jean is-he sure that he put.SUBJ / put.IND the money in
ses poches?
his pockets
'Is Jean sure that he put the money in his pockets?'

b. Jean n'est pas certain qu'il ait mis / a mis l'argent dans
Jean NEG is NEG sure that he put.SUBJ / put.IND the money in
ses poches.
his pockets
'Jean isn't sure that he put the money in his pockets.'

(12) a. Jean est conscient que Marie est arrivée.
Jean is aware that Marie arrive.IND
'Jean is aware that Marie has arrived.'

b. Jean est certain que Marie est arrivée.
Jean is sure that Marie arrive.IND
'Jean is sure that Marie has arrived.'

With *conscient* 'aware' in (12a), the content of the complement is presupposed. Hence, *Marie est arrivée* 'Marie has arrived' is considered to have actually occurred. This is not the case with *certain* 'sure' in (12b): in this sentence, the situation described in the complement can either have occurred or failed to have occurred. The adjective *certain* 'sure' merely expresses the subject's certainty about a situation. However, certainty doesn't imply truth: an individual can be sure of something contrary to fact. The example in (13) confirms that *conscient* 'aware' is factive: the presupposition in (12a) is maintained under negation.

(13) Jean n'est pas conscient que Marie est arrivée.
Jean NEG is NEG aware that Marie arrive.IND
'Jean isn't aware that Marie has arrived.'

As anticipated, the complement of *conscient* 'aware' can be embedded under *le fait que* 'the fact that', unlike *certain* 'sure'. This contrast is shown in (14).

(14) a. Jean est conscient du fait que Marie est arrivée.
Jean is aware of-the fact that Marie arrive.IND
'Jean is aware of the fact that Marie has arrived.'

b. *Jean est certain du fait que Marie est arrivée.
Jean is sure of-the fact that Marie arrive.IND

Since *certain* 'sure' and other adjectives expressing states of believing or assurance (*convaincu* 'convinced', *confiant* 'confident', etc.) are non-factive, their complements should be transparent for extraction of adjuncts. However, this is not borne out by the data. With respect to long movement of *wh*-phrases, non-factives like *certain* 'sure' (15b) behave exactly like the factive adjective *conscient* 'aware' (16b).

(15) a. Jean est certain que sa femme l'a trompé pour
Jean is sure that his wife him cheat.IND to
se venger.
REFL get-even
'Jean is sure that his wife cheated on him to get even.'

b. Pourquoi$_i$ Jean est-il certain t_i que sa femme l'a trompé *t_i?
why Jean is-he sure that his wife him cheat.IND
'Why is Jean sure that his wife cheated on him?'

(16) a. Jean est conscient que sa femme l'a trompé pour
Jean is aware that his wife him cheat.IND to
se venger.
REFL get-even
'Jean is aware that his wife cheated on him to get even.'

b. Pourquoi$_i$ Jean est-il conscient t_i que sa femme l'a trompé $^*t_i$?
why Jean is-he aware that his wife him cheat.IND
'Why is Jean aware that his wife cheated on him?'

Since extraction of adjuncts out of the complements of *certain* 'sure' and *conscient* 'aware' is prohibited, *pourquoi* 'why' can only be construed with the predicate in the main clause. Crucially, with both adjectives, *pourquoi* 'why' cannot be construed with the embedded predicate. The data in (15) and (16) clearly show that, in the case of propositional adjectives, the notion of factivity proves to be insufficient: it fails to make the right predictions concerning long movement of *wh*-phrases. (As will be seen in Section 3, factivity accounts for the whole range of facts with adjectives of the emotive class.)

I will show that the concept of dominance—developed by Erteschik-Shir (1973, 1981) and Erteschik-Shir & Lappin (1979, 1983, 1987)—accounts in a principled way for the unexpected properties presented by the non-factive propositional adjectives. These authors claim that syntactic islands can best be explained by having recourse to a pragmatic condition, that is dominance, rather than by purely structural conditions. They define dominance as in (17).

(17) Dominance
A constituent *c* of a sentence *S* is dominant in *S* if and only if the speaker intends to direct the attention of his hearers to the intension of *c*, by uttering *S*.
(Erteschik-Shir & Lappin 1979: 43)

Dominance is a discourse property that applies to the part of the sentence that represents the main point of the conversation. Hence, a constituent is said to be dominant if it corresponds to the part of the sentence that is salient in the discourse. A test, the lie test, is used to determine the possibility of a dominant reading for a given constituent. To identify the relations of dominance that hold between embedded clauses and matrix clauses, the test consists in "placing the entire complex sentence in a context of direct discourse and denying first the matrix sentence and then the embedded sentence" (Erteschik-Shir & Lappin 1979: 46). If denial of the embedded clause is impossible, it indicates that a dominant reading for this clause is excluded. In such a case, only the matrix clause can receive a dominant reading. The procedure to establish the dominance relations in (18) is illustrated in (19).

(18) John believes that Orcutt is a spy. (=(1) in Erteschik-Shir & Lappin 1979)

(19) Bill said: John believes that Orcutt is a spy.
a. which is a lie – he doesn't.
b. which is a lie – he isn't. (=(2) in Erteschik-Shir & Lappin 1979)

The application of the test in (19) reveals that both the matrix clause and the embedded clause can be naturally interpreted as dominant.[10] Now consider (20).

(20) Bill said: John carefully considered the possibility that Orcutt is a spy.
a. which is a lie – he didn't (consider it carefully).
b. *which is a lie – he isn't (a spy). (=(3) in Erteschik-Shir & Lappin 1979)

As can be seen in (20b), denying the complement produces deviant discourse: a dominant reading for the complement is, in this case, not available; only the matrix clause is interpreted as dominant.

According to Erteschik-Shir & Lappin (1979), the lie test constitutes a tool for identifying the elements that can become topics of further conversation. Thus, in a given conversation, the complement in (19), but not that in (20), can be considered as the information on which the speaker seeks to draw the attention of his hearer, for purposes of further conversation. If the hearer misinterprets the speaker's intentions and directs his attention to non-salient elements, his contribution to the discourse will be inadequate. For instance, in (21), the hearer treats an element of the complement as dominant, that is, considers it as a subject of conversation, which results in an anomalous exchange.

(21) S: John carefully considered the possibility that Orcutt is a spy.
H: I can't stand Orcutt. He's obnoxious.

It is claimed that the property of dominance governs the possibility of *wh*-extraction. The relation between dominance and rules of extraction is described in (22).

(22) An NP can only be extracted out of clauses which may be interpreted as dominant or out of phrases in which the NP may itself be regarded as dominant. (Erteschik-Shir & Lappin 1979: 51)

10. When the lie test is applied to the main clause, the denial bears on the entire sentence, that is, the matrix clause and its complement. Thus, when the matrix clause is said to be dominant, it is the entire sentence that is the focus of attention in the conversation.

The statement in (22) stipulates that it is possible to extract an element only if this element is the main point of the discourse or if it is embedded inside a phrase or a clause that can be considered as the central point of the conversation.[11]

The constraint on extraction in (15b), with a non-factive propositional adjective, can be explained in terms of the dominance condition. Consider the French example in (23) and its English equivalent in (24).

(23) Paul a dit: Jean est certain que Marie a triché à l'examen.
  a. ce qui est un mensonge – Jean n'est pas certain de cela.
  b. *ce qui est un mensonge – Marie n'a pas triché à l'examen.

(24) Paul said: Jean is sure that Marie cheated at the exam.
  a. which is a lie – Jean isn't sure of this.
  b. *which is a lie – Marie didn't cheat at the exam.

Applied to non-factive propositional adjectives, the lie test shows that a dominant reading for the complement is excluded. By using an adjective like *certain* 'sure', the speaker wishes to draw the hearer's attention to the content of the matrix clause, not that of the embedded clause. Consequently, the content of the complement clause cannot constitute a potential topic of conversation. If the hearer treats the complement or an

11. It seems to be the case that a dominant reading for the complements of factive predicates is always excluded. This is demonstrated in (i) and (ii), where the lie test is applied to the factive predicates *aware* and *regret* respectively.

(i) Bill said: John was aware that Mary killed the cat.
  a. which is a lie – he wasn't (aware).
  b. *which is a lie – she didn't (kill the cat).

(ii) Bill said: John regrets that Mary went to the party.
  a. which is a lie – he doesn't (regret it).
  b. *which is a lie – she didn't (go to the party).

The denial of the complements of *aware* and *regret* (the (b) cases) results in an infelicitous exchange, indicating that the complements are interpreted as non-dominant. According to the dominance condition, extraction out of these complements should not be possible (elements can only be extracted out of clauses which can be interpreted as dominant). This is borne out by the data, as illustrated in (iii).

(iii) a. Why_i was John aware t_i that Mary killed the cat $^*t_i$?
  b. Why_i did John regret t_i that Mary went to the party $^*t_i$?

element of the complement as salient in the discourse, his contribution to the conversation will be inappropriate. Consider (25).

(25) S: Jean est certain que Marie a triché à l'examen.
'Jean is sure that Marie cheated at the exam.'
H: Oui, cet examen était très difficile.
'Yes, that exam was very difficult.'

The hearer's response in this exchange is rather odd. It can be considered appropriate only if it is interpreted as an assertion on the matrix clause (Jean's certitude about the situation described in the complement clause), not as an assertion on the content of the complement. To be interpreted as such, we must make up for information not explicitly provided in the conversation (Marie's results were better than expected; therefore, the hearer is also sure that Mary cheated at the exam). In such a case, the hearer's reply is reconstructed as meaning 'Yes, I am also sure that Marie cheated at the exam, because, otherwise (given the exam was difficult), she would have received a poorer grade'. Hence, the exchange in (25) can be considered felicitous, but only in contexts in which it can be inferred that the hearer treats the content of the matrix clause as the focus of attention.[12]

In contrast, the hearer's response in (26) is completely natural. In this case, the hearer treats the content of the main clause as salient in the conversation.

(26) S: Jean est certain que Marie a triché à l'examen.
'Jean is sure that Marie cheated at the exam.'
H: Oui, et il a probablement raison. Je le crois aussi.
'Yes, and he is probably right. I believe it too.'

The data examined above suggest that dominance is a more fundamental or a more basic property than factivity: it accounts directly for the whole range of facts with propositional adjectives. Complements of propositional adjectives, factive as well as non-factive, can never receive a dominant interpretation; hence, extraction of adjuncts out of these complements will be blocked. When using a propositional adjective as the matrix predicate, the speaker intends to direct the attention of his hearer to the content of the main clause, not that of the embedded clause. The proposal put forth by Erteschik-Shir (1973, 1981) and Erteschik-Shir & Lappin (1979, 1983, 1987) is closely related to that provided by Hegarty (1990, 1992) for response stance predicates (*accept*, *agree*, *confirm*, *deny*, etc.), a class of verbs first identified by Cattell (1978). Response stance predicates are non-factive, but present properties that are typical of factive

12. I would like to thank two anonymous reviewers for helpful comments on this example.

predicates (they prohibit subject-to-subject raising, ECM infinitival complements, negation-raising, long movement of *wh*-phrases). According to Hegarty (1990, 1992), with response stance predicates, the situation denoted by the complement is not presupposed; rather, it is at issue in the discourse. Complements of response stance predicates are thus present within the discourse frame, just like complements of factives, that is, they refer to situations that are already established in the common ground; they represent information that is part of the mutual knowledge of the conversational participants. Since the content of these complements is taken for granted by the participants in the discourse, attention is not directed towards it; rather, attention is directed towards the content of the matrix clause, which is the only clause that receives a dominant reading. Consequently, extraction out of complements of response stance predicates, which are non-dominant, will be blocked. The dominance condition is also very much akin to Kuno's (1987: 24) topichood condition for extraction, which states that "only those constituents in a sentence that qualify as the topic of the sentence can undergo extraction processes (i.e., *wh*-Q Movement, *wh*-relative movement, Topicalization, and *It*-Clefting)".[13] The view that all of these approaches seem to share is that restrictions on extraction are governed by pragmatic principles (found under a number of different names, but referring to the same general concept of focus or salience), rather than by purely structural conditions.

It is interesting to note that all non-factive predicates that pattern in some respects like factive predicates—the adjectives discussed in this section, response stance predicates as well as verbs of manner of saying (*lisp*, *murmur*, *yell*, etc., see Erteschik-Shir 1973; Stowell 1981)—belong to the propositional class. In fact, there are very few propositional predicates that behave as expected on the basis of the feature of factivity: *croire* 'believe', *dire* 'say' and *penser* 'think' constitute, to my knowledge, the only examples of propositional predicates that have the typical behavior of non-factives.

3. Emotive adjectives

Emotive adjectives, unlike propositional adjectives, express personal or evaluative judgments, not truth-value judgments. This class includes adjectives of emotional reaction (*content* 'glad', *furieux* 'mad', *irrité* 'annoyed', etc.), which describe psychological states of an individual that are triggered by an *event*, and adjectives like *digne* 'worthy' and *indigne* 'unworthy', which pertain to merit and demerit. In general, emotive adjectives occur with non-finite complements as well as with tensed complements in the subjunctive mood. Examples are provided in (27).

13. I would like to thank an anonymous reviewer for having pointed out Kuno's work to me.

(27) a. Jean est content de partir / que Marie parte.
Jean is glad to leave.INF / that Marie leave.SUBJ
'Jean is glad to leave/that Marie is leaving.'

b. Jean est digne de recevoir nos éloges / que nous
Jean is worthy to receive.INF our praises / that we
le couvrions d'éloges.
him cover.SUBJ of praises
'Jean deserves to be praised/that we shower him with praises.'

As will be seen, adjectives of emotional reaction and adjectives pertaining to worthiness or unworthiness present a number of differing properties that are explainable solely in terms of the factive/non-factive distinction. Adjectives of emotional reaction can be described as follows: "[they] depict a situation in which the event described in the complement clause causes the subject to be in a certain emotional state" (Giorgi & Pianesi 1997: 218). As noted by many authors (Lalaire 1998; Meunier 1999; Quer 2001; Riegel 1997), such adjectives express a relationship of causality between a situation, presupposed to obtain, and a psychological state of an individual. Adjectives of emotional reaction are thus factive: the truth of their complement, which denotes a cause, is always presupposed. Numerous paraphrases bring out the cause-to-effect relationship with adjectives of emotional reaction. For instance, the sentences in (29) roughly convey the same meaning as the sentence in (28).

(28) Jean est content que Marie soit en ville.
Jean is glad that Marie be.SUBJ in town
'Jean is glad that Marie is in town.'

(29) a. Jean est content parce que Marie est en ville.
Jean is glad because Marie be.IND in town
'Jean is glad because Marie is in town.'

b. Que Marie soit en ville rend Jean content.
that Marie be.SUBJ in town cause.IND Jean glad
'That Marie is in town makes Jean glad.'

As for adjectives describing worthiness and unworthiness, they are used by a speaker to make a subjective evaluation (positive or negative) of an object or a human being. With these adjectives, the speaker judges that an object or an individual, in virtue of its/his inherent attributes, deserves or does not deserve something (a privilege, a right, a reward, a punishment, etc.). The complement in this case denotes an *event* that should be granted to the object or individual or an *event* that the object or the individual should undergo. A few examples are given in (30).

(30) a. Toute biographie digne d'être écrite est le récit
every biography worthy to write.PSV.INF is the tale
d'une ascension.
of a ascension
'Any biography worthy of being written is the tale of an ascension.'
(Henri Bordeaux)

b. Celui qui fait des remarques désobligeantes n'est pas
the-one who make some remarks nasty NEG-is NEG
digne qu'on lui réponde.
worthy that we him reply.SUBJ
'He who makes nasty remarks doesn't deserve that we give him a reply.'

In contrast with adjectives of emotional reaction, adjectives of worthiness and unworthiness do not trigger a factive interpretation of their complement. Hence, in (30), the truth of the embedded clause is not presupposed. It thus follows that the *event* selected by adjectives such as *digne* 'worthy' and *indigne* 'unworthy' is of a different nature than the *event* selected by adjectives of emotional reaction. Adjectives of emotional reaction select a presupposed *event*. Extending on the analysis developed by Rochette (1988) for factive emotive verbs, I propose that the complements of such adjectives correspond to definite (or specific) *events*. In opposition, the complements of adjectives pertaining to merit or demerit correspond to irrealis or virtual *events*; as such, they should be analyzed as indefinite or non-specific *events*.

With respect to the factive/non-factive distinction, adjectives of emotional reaction and adjectives of worthiness/unworthiness behave accordingly. Firstly, adjectives of emotional reaction are compatible with a phrase whose head is *fait* 'fact' (31a).[14]

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14. An anonymous reviewer points out that he accepts (31a) only in the case where *du fait que* 'the fact that' means *parce que* 'because'. It can be inferred from the information he provided that sentences involving complements introduced by *que* (ia) and sentences involving complements introduced by *parce que* (ib) are not exactly equivalent semantically.

(i) a. Jean est triste que Marie ne réponde pas à ses appels.
Jean is sad that Marie NEG answer.SUBJ NEG to his calls
'Jean is sad that Marie doesn't answer his calls.'

b. Jean est triste parce que Marie ne répond pas à ses appels.
Jean is sad because Marie NEG answer.IND NEG to his calls
'Jean is sad because Marie doesn't answer his calls.'

Kreutz (1998: 174–175) discusses the subtle differences between the two types of sentences. He notes that sentences of the type in (ib), involving *parce que* 'because', specify the reason or the cause of Jean's sadness, while sentences of the type in (ia), in which the complement is introduced by *que* 'that', are simply concerned with the attribution of an attitude or emotional

This contrasts with adjectives of worthiness/unworthiness, which do not allow this type of phrase (31b).

(31) a. Jean est triste du fait que Marie ne réponde pas à
Jean is sad of-the fact that Marie NEG answer.SUBJ NEG to
ses appels.
his calls
'Jean is sad of the fact that Marie doesn't answer his calls.'

b. *Je ne suis pas digne du fait que vous m'offriez
I NEG am NEG worthy of-the fact that you.PL me offer.SUBJ
votre soutien.
your.PL support

Secondly, adjectives of emotional reaction and adjectives of worthiness/unworthiness differ with respect to long movement of *wh*-phrases. While extraction of adjuncts out of complements is excluded with adjectives of emotional reaction (32a), it is permitted with adjectives of worthiness/unworthiness (32b).

(32) a. Pourquoi$_i$ Jean était-il furieux t_i que Marie ait pris sa voiture *t_i?
why Jean was-he mad that Marie take.SUBJ his car
'Why was Jean mad that Marie took his car?'

b. Où$_i$ Jean est-il digne de manger t_i?
where Jean is-he worthy to eat.INF
'Where is Jean worthy of eating?'

In (32a), *pourquoi* 'why' can bear on the matrix predicate, but not on the embedded predicate. The question in (32a) can thus be used by a speaker to ask his addressee to provide reasons for why the subject is in a certain psychological state. The adjunct *pourquoi* 'why' cannot be associated with the predicate in the subordinate clause; an answer such as *Marie a pris sa voiture pour aller à la plage* 'Marie took his car to go to the beach' would be infelicitous in such a case. As shown in (32b), long movement of *wh*-phrases is permitted with adjectives of worthiness/unworthiness. In (32b), *où* 'where' is construed with the predicate in the complement; the question could be answered with a statement such as *Jean est digne de manger à la table des dignitaires* 'Jean is worthy of eating at the dignitaries' table'.

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state in relation to a specific event, which is presupposed. The question of the difference in meaning between the two types of sentences will not be pursued further here. I will assume that, in both types of sentences, a causal link between an *event* and an emotional state is described, this link being emphasized in cases where *parce que* is involved.

Thirdly, adjectives of emotional reaction can occur with embedded clauses introduced by *de ce que* (lit.: 'of it that'), as illustrated in (33). This possibility is excluded with adjectives of worthiness and unworthiness, as shown in (34).

(33)

Jean	est	content	de	ce	que	Marie	parte.
Jean	is	glad	of	it	that	Marie	leave.SUBJ

'Jean is glad that Marie is leaving.'

(34) a.

Luc	est	digne	que	nous	l'élisions.
Luc	is	worthy	that	we	him elect.SUBJ

'Luc deserves that we elect him.'

b.

*Luc	est	digne	de	ce	que	nous	l'élisions.
Luc	is	worthy	of	it	that	we	him elect.SUBJ

(=(1.62) in Lalaire 1998: 41)

Adjectives of emotional reaction and adjectives of worthiness/unworthiness also exhibit, in certain dialects of French, different behaviors with respect to two phenomena: the possibility of a mood alternation in the embedded clause and the presence/absence of obviation effects. In French, as well as in other Romance languages, such as Spanish and Catalan, some speakers allow both the subjunctive mood and the indicative mood in the complement of factive emotive predicates (Farkas 1992, 2003; Giorgi & Pianesi 1997; Quer 2001). For speakers of certain French dialects, the embedded clause of adjectives of emotional reaction can either be in the subjunctive or in the indicative, as in (35).

(35)

%Jean	est	triste	qu'il	ait blessé	/ a blessé	Marie.
Jean	is	sad	that he	hurt.SUBJ	/ hurt.IND	Marie

'Jean is sad that he hurt Marie.'

In contrast, adjectives of worthiness/unworthiness do not allow indicative complements: as illustrated in (36), with these adjectives, the subjunctive is the only possible mood choice. Note that the subjunctive in this type of sentence is not a subjunctive induced by negation, for adjectives pertaining to merit and demerit are never followed by indicative clauses (see (27b) and (34a), in which the adjectives select subjunctive complements even if negation is not present).

(36)

Je	ne	suis	pas	digne	que	vous	m'offriez	/	*m'offrez
I	NEG	am	NEG	worthy	that	you.PL	me offer.SUBJ	/	offer.IND

votre	soutien.
your.PL	support

'I don't deserve that you offer me your support.'

In addition, adjectives of emotional reaction, which are factive, and adjectives of worthiness/unworthiness, which are non-factive, differ with respect to obviation—also

known as the disjoint reference requirement—a phenomenon which is manifested in a number of Romance languages in particular subjunctive environments.[15] Obviation refers to the impossibility of coreference between the matrix subject and the subject of the subjunctive clause. In this respect, an asymmetry is observed between factive emotive predicates and non-factive emotive predicates. (Again, this is only valid for specific French dialects.) As shown in (37), for some speakers, the disjoint reference requirement does not hold with adjectives of emotional reaction; with these adjectives, coreference between the matrix subject and the embedded subject is allowed.

(37) %Jean$_i$ est triste qu'il$_{i/j}$ ait perdu son chien.
Jean is sad that he lose.SUBJ his dog
'Jean is sad that he lost his dog.'

However, with adjectives of worthiness/unworthiness, disjoint reference is forced between the subject of the matrix clause and the subject of the embedded subjunctive clause. This accounts for the contrast in grammaticality between (38a) and (38b).

(38) a. *Je ne suis pas digne que je sois reçu dans ta demeure.
I NEG am NEG worthy that I receive.SUBJ in your.SG home

b. Je ne suis pas digne que tu me reçoives dans ta demeure.
I NEG am NEG worthy that you.SG me receive.SUBJ in your.SG home
'I don't deserve that you receive me in your home.'

With adjectives of worthiness/unworthiness, a coreferential reading of the subjects can only be expressed with an infinitival clause, as in (39).

(39) Je ne suis pas digne d'être appelé.
I NEG am NEG worthy to call.PSV.INF
'I don't deserve to be called.'

It is important to note that propositional adjectives, whether they are factive like *conscient* 'aware' (40a) or non-factive like *certain* 'sure' (40b), do not display obviation effects. In both cases, the subject of the embedded clause in the indicative can be understood as coreferential with the subject of the matrix clause.

15. Obviation is usually treated as a result of a principle B violation of the Binding Theory (Avrutin & Babyonyshev 1997; Kempchinsky 1997; Picallo 1984). Most analyses developed to account for this phenomenon rely on different mechanisms whose effect is to extend the binding domain of the pronominal subject of the embedded clause in the subjunctive in such a way as to include the matrix clause. As a consequence, coreference between the matrix subject and the embedded subject is prohibited.

(40) a. Jean$_i$ est conscient qu'il$_{i/j}$ est malade.
Jean is aware that he be.IND sick
'Jean is aware that he is sick.'

b. Jean$_i$ est certain qu'il$_{i/j}$ est malade.
Jean is sure that he be.IND sick
'Jean is sure that he is sick.'

Obviation effects are also absent in contexts in which propositional adjectives are followed by an embedded clause in the subjunctive (the subjunctive mood being induced here by negation or direct interrogation). This is shown in (41).

(41) a. Jean$_i$ n'est pas certain qu'il$_{i/j}$ ait mis l'argent dans ses poches.
Jean NEG is NEG sure that he put.SUBJ the money in his pockets
'Jean is not sure that he put the money in his pockets.'

b. Jean$_i$ est-il certain qu'il$_{i/j}$ ait mis l'argent dans ses poches?
Jean is-he sure that he put.SUBJ the money in his pockets
'Is Jean sure that he put the money in his pockets?'

It is clear from these facts that adjectives to which the disjoint reference requirement applies belong to the non-factive emotive class.[16] The particular properties presented by factive emotive adjectives in certain dialects of French, that is, the possibility of

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16. Ruwet (1991) discusses cases in which obviation effects tend to disappear with a verb like *vouloir* 'want', which is a non-factive verb of the emotive class. For example, in (i), the presence of a passive verb in the complement renders coreference between the subject of the embedded clause in the subjunctive and the subject of the matrix clause more acceptable with this verb.

(i) ?Je veux que je sois autorisé à partir demain.
I want that I be.authorised.SUBJ to leave.INF tomorrow
'I want to be authorised to leave tomorrow.'
(=(38a) in Ruwet 1991: 20)

Ruwet argues that, in a sentence like (i), a conceptual distance is introduced between the subject of the matrix clause and the subject of the embedded clause. Hence, the subjects are construed as having a distinct psychological reality. These sentences, which seem at first sight counterexamples to obviation effects with non-factive predicates, should be treated as "special" cases of the disjoint reference requirement: the subjects do not have exactly the same identity.

occurring with indicative complements and the absence of obviation effects, put them on a par with propositional adjectives. As suggested by Rochette (1988), it is possible that the complements of factive emotive predicates are analyzed by the speakers of these dialects as projections of COMP, rather than projections of INFL (hence as *propositions* rather than *events*). Let's note here that Farkas (1992) offers an explanation for the mood variation attested in certain dialects of French with emotive factives. According to this author, mood variation in these cases results from the hybrid character of these predicates: because of their emotive or evaluative nature, they can govern subjunctive complements, and because of their factivity, they can also select indicative clauses.

To summarize, two types of emotive adjectives were identified: adjectives of emotional reaction, which select presupposed *events* and adjectives pertaining to merit/demerit, which select irrealis *events*. The distinct characteristics presented by these two types of adjectives can all be accounted for in terms of the factive/non-factive distinction.[17]

4. Effective adjectives and properties of their non-finite complements

The class of effective adjectives, which describe a subject's relationship—whether causal, potential or other—to the performance of an action, is fairly large and can be divided into at least three subtypes, as in (42).

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17. There is perhaps yet another subclass of emotive adjectives, which could be called the "eagerness subclass", because they have to do with the subject's keenness, enthusiasm or impetuosity (like *anxieux* 'anxious' and *impatient* 'eager'/'impatient'). These adjectives can select both subjunctive and infinitival clauses, as in (i).

(i) a. Jean est impatient que Marie revienne / de revenir.
Jean is eager that Marie return.SUBJ / to return.INF
'Jean is eager for Marie to return/to return.'

b. Jean est anxieux que je parte / de partir.
Jean is anxious that I leave.SUBJ / to leave.INF
'Jean is anxious for me to leave /to leave.'

The complements of these predicates, in contrast to those of adjectives of emotional reaction and adjectives of merit and demerit (the two subgroups identified as emotives), cannot be replaced by a pronoun, as shown in (ii).

(ii) a. *Jean en est impatient, de revenir.
b. *Jean en est anxieux, de partir.

(42) a. propensity adjectives: *déterminé* 'determined', *enclin* 'inclined', *prêt* 'ready', *sujet* 'prone'.

b. ability adjectives: *capable* 'able', *incapable* 'unable', *susceptible* 'likely'/'liable'.

c. easiness/difficulty adjectives: *difficile* 'difficult'/'hard', *dur* 'tough', *facile* 'easy', *impossible* 'impossible'.

In short, propensity adjectives pertain to inclinations, predispositions or natural tendencies of a subject towards an action. Ability adjectives describe the potentiality of a subject to accomplish an action; these adjectives are used to express that a subject has the required inherent characteristics to carry out an action. Finally, adjectives such as *facile* 'easy' and *difficile* 'difficult'/'hard' concern the degree of easiness or difficulty with respect to the performance of an action. Members of the effective class all share the property that their complements must be tenseless complements, as shown in (43).[18] (Propensity adjectives are somewhat an exception to this generalization since, as will be seen below, they can also select special types of subjunctive clauses.)

(43) a. Jean$_i$ est résolu à partir / *qu'il$_{i/j}$ part
Jean is determined to leave.INF / that he leave.IND
/ *qu'il$_{i/j}$ parte.
/ that he leave.SUBJ
'Jean is determined to leave.'

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18. Infinitival complements of effective adjectives in French are either introduced by *à* or *de* depending on the subtype. This contrasts with English, where the introducing element is always *to*. In French, non-finite complements of propensity adjectives are systematically preceded by *à*, while those of ability adjectives are invariably preceded by *de*. With adjectives of the *facile* 'easy' type, for which an alternation impersonal construction/personal pattern is always possible, *à* and *de* are in complementary distribution: *à* appears exclusively in personal patterns (ia), whereas *de* occurs only in impersonal constructions (ib).

(i) a. Jean est facile à convaincre. (= 43c)
b. Il est facile de convaincre Jean.
it is easy to convince Jean
'It is easy to convince Jean.'

The meaning and the syntactic status of *à* and *de* with the *facile* 'easy' subtype of adjectives, as well as with other effective adjectives, will not be discussed here (see Canac-Marquis (1996) on this subject). This paper is also not concerned with the difference in meaning, noted by several authors (Huot 1981; Mair 1990; Postal 1971), between the impersonal construction and the personal pattern with the *facile* 'easy' subtype of adjectives (for example, in personal constructions, the adjective describes inherent properties of the subject, which is not the case in impersonal constructions).

b. Jean$_i$ est capable de lire / *qu'il$_{i/j}$ lit / *qu'il$_{i/j}$ lise.
Jean is able to read.INF / that he read.IND / that he read.SUBJ
'Jean is able to read.'

c. Jean est facile à convaincre / *qu'on convainc
Jean is easy to convince.INF / that we convince.IND
/ *qu'on convainque.
/ that we convince.SUBJ
'Jean is easy to convince.'

Infinitival complements of effective adjectives present several syntactic and semantic properties that set them apart from those of propositional and emotive adjectives. In fact, as will be shown in this section, the properties of the non-finite complements of effective adjectives indicate that they are reduced complements, which are characterized by a greater fusion with the adjective that selects them.

Firstly, effective adjectives impose selection restrictions with respect to the aspectual type of situation that can appear as their complement.[19] More precisely, infinitival complements denoting states are prohibited with these adjectives, as illustrated in (44).

(44) a. *Jean est prêt à avoir les yeux bleus.
Jean is ready to have.INF the eyes blue

b. *Jean est capable d'être chauve.
Jean is able to be.INF bald

c. *Cette maison est facile à posséder.
that house is easy to own

Under a purely stative interpretation, the sentences in (44) are ill-formed. They are only acceptable if a reading involving some type of action is forced. For instance, (44a) would be felicitous in a context in which the subject takes the necessary measures to attain the state denoted by the infinitival complement (for example, by buying special contact

19. "Aspectual type of situation" refers here to the lexical aspect of the group formed by a predicate and its arguments. Since Vendler (1967), four aspectual classes are usually distinguished: states, activities, accomplishments and achievements. In a nutshell, states (*be beautiful*, *know something*, *love someone*) involve no change over time (they are non-dynamic): for a given interval, a state is true of any instant of this interval. Activities (*run*, *walk*, *swim*), in contrast with states, are dynamic: they imply change over time, for they are constituted of a series of repeated or successive actions that are not identical from one instant to another. They do not comprise a natural endpoint (atelic) and have duration. Accomplishments (*draw a circle*, *write a letter*, *build a chair*) are durative, but have an inherent endpoint (telic), after which the accomplishment cannot continue. Finally, achievements (*find something*, *recognize someone*, *arrive somewhere*) are instantaneous changes of state: they have a natural endpoint or outcome that must be reached in order for the achievement to be considered as having taken place.

lenses or by undergoing some very sophisticated surgery of some type to become a blue-eyed man). It is possible to construe similar contexts that would render the sentences in (44b) and (44c) more acceptable, that is, contexts where *be* and *own* convey the meaning of processes such as *become* and *acquire* ('Jean is able to become bald' and 'That house is easy to acquire'). Crucially, when sentences of the type in (44) are deemed grammatical by native speakers, the infinitival complements are not interpreted as stative situations; rather, they receive a reading that involves the presence of a process.[20]

In contrast with effective adjectives, propositional and emotive adjectives do not place aspectual restrictions on their non-finite complements. They freely occur with complements denoting situations of any aspectual type, including states, as in (45). In these sentences, the infinitival complements can be interpreted as "true" statives.

(45) a. Jean est certain de savoir la réponse / d'être grand.
Jean is sure to know.INF the answer / to be.INF tall
'Jean is sure that he knows the answer/that he is tall.'

b. Jean est content d'être beau / d'être d'origine polonaise.
Jean is glad to be.INF handsome / to be.INF of descent Polish
'Jean is glad that he is handsome/that he is of Polish descent.'

Secondly, constructions in which effective adjectives appear involve, in some cases, event unification. In fact, the interpretation of constructions with subgroups of effective adjectives indicates that they do not constitute independent events. (The impossibility of independent temporal modification discussed below lends support to this analysis.) Thus, in the examples in (46a) and (46b), the interpretation does not involve two autonomous events, one corresponding to the tensed predicate, and the

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20. It is important to note that this restriction against states is not general. Tenseless complements denoting stage-level predicates (bounded situations, like *être absent* 'be absent', *être malade* 'be sick', *croire quelque chose* 'believe something') combine more easily with effective adjectives than individual-level predicates (unbounded situations, like *être beau* 'be beautiful', *être grand* 'be tall'). This is illustrated in (i), in which the sentences involving complements denoting stage-level predicates are perfectly natural (contrast with examples in (44)).

(i) a. Jean est prêt à être présent à la réunion.
Jean is ready to be.INF present at the meeting
'Jean is ready to be present at the meeting.'

b. Ces allégations sont difficiles à croire.
those allegations are hard to believe.INF
'Those allegations are hard to believe.'

Although these facts deserve further investigation, they seem to indicate that stage-level predicates are akin, because of their bounded nature, to other aspectual types.

other, to the lower infinitival predicate. Rather, in these sentences, the effective adjectives and their complements necessarily denote a single event. For instance, in (46a), the reading obtained is not one in which *être capable* 'be able' constitutes one event and *lever cette chaise* 'lift that chair' another event, distinct from the former. A sole event is implied, that is *capable de lever cette chaise* 'be able to lift that chair'. The sentence in (46b) also receives this type of interpretation; in this case, *être difficile* 'be difficult' and *rejoindre* 'reach' cannot be conceived as autonomous events. Things are different in (46c) however. In this case, *être prêt* 'be ready' can be considered as an event distinct from *écrire la lettre* 'write the letter', which is interpreted as posterior to the state described by the higher predicate.

(46) a. Jean est capable de lever cette chaise.
Jean is able to lift.INF that chair
'Jean is able to lift that chair.'

b. Jean est difficile à rejoindre.
Jean is difficult to reach.INF
'Jean is difficult to reach.'

c. Jean est prêt à écrire la lettre.
Jean is ready to write.INF the letter
'Jean is ready to write the letter.'

However, the interpretation of sentences that contain propositional and emotive adjectives reveals that these adjectives constitute autonomous events. Hence, the interpretation of (47a) and (47b) clearly involves two separate events, one associated with the tensed predicate (*être certain* 'be sure' or *être content* 'be glad'), and the other associated with the infinitival complement (*avoir écrit cette lettre* 'wrote this letter' or *partir* 'leave').

(47) a. Jean est certain d'avoir écrit cette lettre.
Jean is sure to write.PST.INF this letter
'Jean is sure that he wrote this letter.'

b. Jean est content de partir.
Jean is glad to leave.INF
'Jean is glad to leave.'

The fact that infinitival complements of effective adjectives of the ability subgroup and of the *easy* subtype disallow a temporal interpretation distinct from that of the higher clause suggests that only one event is involved. As shown in (48a) and (48b), the use of different temporal adverbs (*aujourd'hui* 'today' and *hier* 'yesterday')—one corresponding to the time of the attribution of the property (the tensed predicate) and the other corresponding to the time of the performance of the action (the infinitival complement)—is prohibited with these adjectives. With propensity adjectives also, the

time of the attribution of the state denoted by the higher predicate cannot precede the time of the performance of the action, as shown in (48c).

(48) *today (attribution of the property) yesterday (performance of the action)

a. *Aujourd'hui, Jean est capable de lever cette chaise hier.
b. *Aujourd'hui, Jean est difficile à rejoindre hier.
c. *Aujourd'hui, Jean est prêt à écrire la lettre hier.

In contrast, the predicates involved in structures with propositional and emotive adjectives do not require the same temporal specification. Therefore, the sentences in (49), in which temporal adverbs referring to different time frames are used, are felicitous.

(49) today (attribution of the property) yesterday (*proposition*/*event*)

a. Aujourd'hui, Jean est certain d'avoir écrit cette lettre hier.
'Today, Jean is sure that he wrote this letter yesterday.'
b. Aujourd'hui, Jean est content d'être parti hier.
'Today, Jean is glad that he left yesterday.'

It is important to note that infinitival complements of propensity adjectives, such as *prêt* 'ready', *résolu* 'determined', etc., seem to be more independent from their selecting predicates, in comparison to the other two subtypes of effective adjectives. In fact, in structures involving adjectives pertaining to inclinations or natural tendencies, the presence of distinct temporal adverbs is allowed, although it is restricted. Consider (50).

(50) yesterday (attribution of the property) today (performance of the action)

Hier, Jean était prêt à écrire la lettre aujourd'hui.
'Yesterday, Jean was ready to write the letter today.'

With propensity adjectives, when the use of different temporal adverbs is permitted, a strict temporal sequence is required: the time of the attribution of the property (*être prêt* 'be ready') must obligatorily precede the time of the performance of the action (*écrire la lettre* 'write the letter'). As was shown in (48c), the time of the attribution of the property cannot be placed after the time of the performance of the action.

The use of different temporal adverbs is totally impossible with the other two subtypes of effective adjectives: the time of the attribution of the property can neither follow ((48a) and (48b)) nor precede (51) that of the performance of the action.

(51) *yesterday (attribution of the property) today (performance of the action)

a. *Hier, Jean a été capable de lever cette chaise aujourd'hui.
b. *Hier, Jean a été difficile à rejoindre aujourd'hui.

With propositional and emotive adjectives, there are absolutely no constraints regarding the temporal sequential order: the time of the attribution of the property can either follow (49) or precede (52) the time of the *proposition* or the *event*.

(52) yesterday (attribution of the property) today (*proposition/event*)

a. Hier, Jean était certain d'écrire cette lettre aujourd'hui.
'Yesterday, Jean was sure that he would write this letter today.'

b. Hier, Jean était content de partir aujourd'hui.
'Yesterday, Jean was glad that he would leave today.'

The data examined thus far show that, in the case of ability adjectives and *easy* adjectives, there is only one event involved in constructions in which they appear, a fact which suggests complex predicate formation. As the non-finite complements of these two types of effective adjectives cannot have a tense specification of their own, they are best treated as bare VPs, lacking tense projections.[21] It is less evident, however, that infinitival complements of propensity adjectives are completely devoid of tense features for, at least in some very specific cases, different tense modification is permitted. Tenseless complements of propensity adjectives seem to be less deficient than that of the other subtypes of effective adjectives, but are nevertheless more reduced than that of propositional and emotive adjectives.

Thirdly, the infinitival complements of some subtypes of effective adjectives do not present the typical behavior of internal arguments in that they can neither be replaced by a pronoun nor be questioned directly. Consider the examples in (53), which illustrate pronominalization possibilities for each of the three subtypes of effective adjectives.

(53) a. Jean y est prêt, à résoudre le problème.
Jean at-that is ready to solve.INF the problem
'Lit.: Jean *y* (at that) is ready, to solve the problem.'

b. Jean en est capable, d'accomplir cette mission.
Jean of-that is able to accomplish.INF that mission
'Lit.: Jean *en* (of that) is able, to accomplish that mission.'

c. *Jean y est facile, à contenter.
Jean at-that is easy to please.INF

As can be seen in (53), effective adjectives do not behave in a uniform fashion with respect to the possibility of pronominalization of their infinitival complement. While

21. An anonymous reviewer remarks that, from the fact that non-finite complements of these two types of effective adjectives cannot have a tense specification of their own, one cannot automatically conclude that one single event is involved. The impossibility of the use of different temporal adverbs with these adjectives can indicate as well that two simultaneous events are involved. If this type of analysis proves to be right, it might well be the case that the infinitival complements of these adjectives bear tense features.

replacement of infinitival complements of propensity adjectives (53a) and ability adjectives (53b) is permitted, it is excluded with easiness/difficulty adjectives (53c).

All adjectives belonging to the propositional and emotive classes freely allow replacement of their infinitival complements by a pronoun, as shown in (54).

(54) a. Jean en est convaincu, de pouvoir gagner la course.
Jean of-that is convinced to be.able.INF win the race
'Lit.: Jean *en* (of that) is convinced, that he can win the race.'

b. Jean en est triste, de devoir quitter Marie.
Jean of-that is sad to have.to.INF leave Marie
'Lit.: Jean *en* (of that) is sad, that he has to leave Marie.'

Similarly, the impossibility of questioning directly the infinitival complements of some subtypes of effective adjectives show that they do not exhibit the normal characteristics of internal arguments. Consider first the behavior of infinitival complements of ability adjectives (55) in this respect.

(55) De quoi Jean est-il capable?
of what Jean is-he able
'Lit.: Of what is Jean able?'

The interrogative in (55) is only truly acceptable if it constitutes a question on the object noun phrase of these adjectives. Hence, for (55), only an answer of the type in (56), which involves an object nominal phrase, not that in (57), which involves an infinitival complement, is entirely appropriate.

(56) Jean est capable de générosité.
Jean is able of generosity
'Jean is able to show generosity.'

(57) Jean est capable de manifester de la générosité.
Jean is able to demonstrate.INF of the generosity
'Jean is able to show generosity.'

To question the infinitival complements of *capable* 'able', the only option is to resort to the pro-verb *faire* 'do'. To the question in (58), an answer such as that in (57), involving an infinitival complement, is acceptable.

(58) Qu'est-ce que Jean est capable de faire?
what Jean is able to do.INF
'What is Jean able to do?'

The infinitival complements of propensity adjectives, however, have the expected behavior of internal arguments: in this case, interrogatives introduced by *à quoi* (lit.: 'at what') can be used to question the infinitival complements. Thus, to the question in (59a) can correspond the answer in (59b).

(59) a. À quoi Jean est-il prêt?
at what Jean is-he ready
'What is Jean ready to do?'

b. Jean est prêt à attendre Marie.
Jean is ready to wait.for.INF Marie
'Jean is ready to wait for Marie.'

Questioning of the infinitival complements of adjectives belonging to the *facile* 'easy' subtype is completely prohibited, as shown by the ungrammaticality of (60).

(60) *À quoi Jean est-il facile / difficile?
at what Jean is-he easy / hard

Infinitival complements of all propositional and emotive adjectives can be questioned directly. To the questions in (61), answers such as those in (62) are valid.

(61) a. De quoi Jean est-il convaincu?
of what Jean is-he convinced
'What is it that Jean is convinced of?'

b. De quoi Jean est-il triste?
of what Jean is-he sad
'What is it that Jean is sad about?'

(62) a. Jean est convaincu d'être laid.
Jean is convinced to be.INF ugly
'Jean is convinced that he is ugly.'

b. Jean est triste d'être seul.
Jean is sad to be.INF alone
'Jean is sad that he is alone.'

The distinct behavior of the three subtypes of effective adjectives regarding the possibility of pronominalization and direct questioning of their complements is taken to be a reflection of the degree of autonomy between the main clause and the infinitival complement. Tenseless complements of propensity adjectives, which can be replaced by a pronoun and questioned directly, are more independent from their selecting predicate.[22] Infinitival complements of the *facile* 'easy' type present the least degree of

22. It is worth noting that propensity adjectives can select, along with non-finite complements, a special type of tensed complements, that is, subjunctive clauses introduced by *à ce que* (lit.: 'at it that'), as in (i).

(i) Jean est déterminé à ce que Marie parte demain.
Jean is determined at it that Marie leave.SUBJ tomorrow
'Jean is determined to see to it that Marie leaves tomorrow.'

autonomy with respect to the tensed clause: with these adjectives, pronominalization and questioning of the infinitival complement are completely excluded. As for ability adjectives—which allow replacement of their complement by a pronoun as well as a particular kind of questioning of their argument (with the pro-verb *faire* 'do')—, the degree of independence with respect to their complement can be characterized as intermediate. Thus, the class of effective adjectives does not constitute a homogeneous group. The three subtypes of effective adjectives can be viewed as being organized as a continuum as follows: propensity > ability > easiness/difficulty.

In summary, the properties of constructions in which effective adjectives occur show that the complements of these adjectives are more reduced than those of the propositional and emotive classes. The particular characteristics presented by two subgroups of effective adjectives reveal that they form with their complement a complex predicate. Constructions with effective adjectives should, at least in some cases, be analyzed as monoclausal structures (the case with propensity adjectives is not clear). Consequently, the expression "sentential complements" is unsuitable when referring to the non-finite complements of some of the effective adjectives.

5. "Impostor" adjectives

Besides the adjectives considered thus far, others can be followed by a tensed clause or an infinitival clause. This is the case for adjectives such as *chanceux* 'lucky' and its antonym *malchanceux* 'unlucky', which can occur with both tensed subjunctive clauses and non-finite clauses, as in (63), as well as for adjectives describing moral qualities (*brave* 'brave', *gentil* 'nice', *poli* 'polite'), which appear exclusively with infinitival clauses, as illustrated in (64).[23]

In (i), the adjective is used to convey a meaning of volition or desire, rather than to describe an inclination towards an action. Interestingly, in French, there are no "pure" adjectives of volition, that is, adjectives that would correspond to verbs such as *souhaiter* 'wish', *vouloir* 'want', which are emotive verbs. Adjectives of the emotive class are of two types: adjectives of emotional reaction, which describe a psychological state resulting from an *event*, and adjectives of worthiness/unworthiness, which have to do with merit or demerit. Adjectives like *prêt* 'ready', *résolu* 'determined', etc., when they appear with *à ce que* (lit.: 'at it that') clauses, are the only ones that can express volition.

23. In Léger (2006), a third class of "impostors", that is, adjectives pertaining to skills, competence or expertise (*bon* 'good', *habile* 'skillful', *compétent* 'adept', etc.), is identified. Prima facie, these adjectives seem to belong to the effective class since they can only be followed by a non-finite clause, as illustrated in (i).

(63) a. Jean est vraiment chanceux d'avoir une bonne mère.
Jean is really lucky to have.INF a good mother
'Jean is really lucky to have a good mother.'

b. Jean a été malchanceux qu'il ait plu le jour de son mariage.
Jean was unlucky that it rain.SUBJ the day of his wedding
'Jean was unlucky that it rained on his wedding day.'

(64) a. Jean a été très gentil de nous offrir son aide.
Jean was very nice to us offer.INF his help
'Jean was very nice to have offered us his help.'

b. *Jean$_i$ a été très gentil qu'il$_{i/j}$ nous a offert / ait offert son aide.
Jean was very nice that he us offer.IND / offer.SUBJ his help

At first glance, adjectives of the *chanceux* 'lucky' type seem to be members of the emotive class, while moral quality adjectives appear to belong to the effective class. However, it will be shown that, despite appearances, these two types of adjectives, at least in constructions such as those in (63) and (64), are not sentential-complement taking adjectives: the clause with which they occur is an adjunct, not a selected argument.

5.1 Adjectives of the *chanceux* 'lucky' type

As shown in (63), adjectives like *chanceux* 'lucky' participate in constructions that are superficially similar to the ones that emotive adjectives occur in. Moreover, properties presented by these adjectives seem to indicate that they are factive, just like adjectives of emotional reaction. In fact, *chanceux* 'lucky' and other adjectives of this type do not display obviation effects, as shown in (65a), in which a coreferential interpretation

(i) Jean est compétent à convaincre / *qu'il convainc / qu'il
Jean is adept at convince.INF / that he convince.IND / that he
convainque le jury de l'innocence de ses clients.
convince.SUBJ the jury of the innocence of his clients
'Jean is adept at convincing the jury of the innocence of his clients.'

The particular properties that skill adjectives exhibit—namely the kind of aspectual constraints they impose on the infinitival clause with which they appear (they only allow activities, in contrast with effective adjectives that do not permit states as their complement)—reveal that they are not members of the effective class. I argue that skill adjectives require the presence of a competence area, not of an *action* per se, and that one of the possible realization of this competence area is an infinitival phrase denoting activities.

of the subjects is available, and allow both subjunctive and indicative mood in their clause, as illustrated in (65a).[24]

(65) a. Jean$_i$ a été chanceux qu'il$_{i/j}$ réussisse / a réussi à
Jean was lucky that he manage.SUBJ / manage.IND to
trouver ses documents avant la conférence.
find his documents before the conference
'Jean was lucky that he managed to find his documents before the conference.'

b. Jean a été malchanceux qu'il pleuve / a plu le jour
Jean was unlucky that it rain.SUBJ / rain.IND the day
de son mariage.
of his wedding
'Jean was unlucky that it rained on his wedding day.'

Absence of obviation effects and possibility of a mood alternation are properties that are exclusive to factives of the emotive class. It is worth noting that the situation denoted by the clause that follows adjectives like *chanceux* 'lucky' is presupposed. Thus, the situations *réussir à trouver ses documents avant la conférence* 'manage to find his documents before the conference' and *pleuvoir le jour de son mariage* 'rain on his wedding day' in (65) are understood as having actually occurred in the past. Negation and interrogation, classic tests used to diagnose factivity, fail to cancel out the presupposition induced with this type of adjectives. This is shown in (66), where the truth of the situation denoted by the infinitival clause in all three sentences (affirmative, negative and interrogative) is taken for granted.

(66) a. Jean est chanceux d'être né au Canada.
Jean is lucky to born.PST.INF in Canada
'Jean is lucky to have been born in Canada.'

b. Jean n'est pas chanceux d'être né au Canada.
Jean NEG is NEG lucky to born.PST.INF in Canada
'Jean isn't lucky to have been born in Canada.'

c. Jean est-il chanceux d'être né au Canada?
Jean is-he lucky to born.PST.INF in Canada
'Is Jean lucky to have been born in Canada?'

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24. There is dialectal variation concerning the pair *chanceux/malchanceux* 'lucky'/'unlucky'. The data discussed here reflect the grammar of a number of speakers of certain varieties of French (namely Québécois French and Acadian French). As noted by two anonymous reviewers, in varieties of French spoken in Europe, *avoir de la chance/ne pas avoir de chance* 'have the fortune'/'not have the fortune' are used instead. In addition, for speakers of these varieties, it seems to be the case that these nominal predicates display obviation effects and govern subjunctive clauses (the indicative mood is prohibited).

However, a careful examination of the data pertaining to adjectives like *chanceux* 'lucky' reveals that they are not factive and do not belong to the class of emotive adjectives. From a syntactic perspective, structures in which these adjectives appear present a number of characteristics that distinguish them from those with adjectives of emotional reaction, which are factive emotive adjectives. Firstly, it is impossible to refer to the clause that follows *chanceux* 'lucky' and other members of this class by using a pronoun (67a). This is possible with adjectives of emotional reaction, as illustrated in (67b).

(67) a. *Jean en est chanceux, d'avoir une bonne mère / que
Jean of-that is lucky to have.INF a good mother / that
Marie soit venue à son secours.
Marie come.SUBJ to his rescue

b. Jean en est étonné, d'avoir raté son examen / que
Jean of-that is surprised to fail.PST.INF his exam / that
Marie soit arrivée tôt.
Marie arrive.SUBJ early
'Jean is surprised that he failed his exam/that Marie arrived early.'

Secondly, interrogatives introduced by *de quoi* (lit.: 'of what') cannot be used to question the infinitival or tensed clause of *chanceux* 'lucky' type of adjectives, as shown by the ungrammaticality of (68).

(68) *De quoi Jean est-il chanceux / malchanceux?
of what Jean is-he lucky / unlucky

The examples in (69) show that it is possible to question the clause of adjectives of emotional reaction by means of this type of question. Hence, for the question provided in (69a), (69b) constitutes a completely appropriate answer.

(69) a. De quoi Jean est-il étonné?
of what Jean is-he surprised
'What is it that Jean is surprised about?'

b. Jean est étonné d'avoir raté son examen / que
Jean is surprised to fail.PST.INF his exam / that
Marie soit arrivée tôt.
Marie arrive.SUBJ early
'Jean is surprised that he failed his exam/that Marie arrived early.'

Thirdly, a noun phrase denoting an *event* cannot replace the clause that follows adjectives of the *chanceux* 'lucky' type (70a). This is always possible for adjectives of emotional reaction (70b).

(70) a. *Jean est chanceux de sa réussite / de la venue de Marie.
Jean is lucky of his success / of the arrival of Marie

b. Jean est étonné de sa réussite / de la venue de Marie.
Jean is surprised of his success / of the arrival of Marie
'Jean is surprised of his success/of Marie's arrival.'

The data discussed above all follow if the infinitival or tensed clause following adjectives such as *chanceux* 'lucky' is an adjunct, rather than a selected element. The fact that the clause is entirely optional with these adjectives corroborates this analysis. As shown in (71), adjectives of the *chanceux* 'lucky' type can occur without an infinitival or a tensed clause.

(71) Jean est chanceux / malchanceux.
Jean is lucky / unlucky
'Jean is lucky/unlucky.'

In (71), a situation normally described by a clause is not necessarily implied. Thus, *chanceux* 'lucky' and *malchanceux* 'unlucky' can express a permanent or intrinsic property of the subject; in other words, it can function as an individual-level predicate. When these adjectives are followed by a clause, such as in (65), the property is circumscribed to a particular situation; it is bounded. In this case, the adjective is used as a stage-level predicate, which expresses temporary properties or transient states (on the distinction between stage-level and individual-level predicates, see Kratzer 1995).

I would like to propose that the infinitival or tensed clause following adjectives belonging to the class of *chanceux* 'lucky' denotes a definite or specific *event*, which constitutes the basis on which the speaker relies to express an evaluative judgment towards an individual. Thus, the *event* with adjectives of the type of *chanceux* 'lucky' and the *event* with adjectives of emotional reaction, in addition to having a different syntactic status, have distinct semantic functions. With adjectives of emotional reaction, the *event* (a true complement) represents the cause that triggers the psychological state expressed by the adjective. With adjectives like *chanceux* 'lucky', however, no causal relationship holds between the *event* and the property denoted by the adjective. Hence, the sentence in (72b) is not an acceptable paraphrase for (72a).

(72) a. Jean est chanceux que Marie l' ait aidé.
Jean is lucky that Marie him help.SUBJ
'Jean is lucky that Marie helped him.'

b. #Que Marie l' ait aidé rend Jean chanceux.
that Marie him help.SUBJ cause.IND Jean lucky
'That Marie has helped him makes Jean lucky.'

It seems that the *event* with *chanceux* 'lucky' and adjectives with similar meaning constitutes the justification of the speaker for his attribution of a temporary property

to an individual. In fact, when an infinitival or tensed clause is realized with these adjectives, the speaker infers from the occurrence of an *event* that a certain property of an individual holds. In other words, the *event* corresponds to some kind of evidence or proof entitling the speaker to express a subjective judgment towards an individual. Given this analysis, it naturally follows that the *event* must be presupposed. Nevertheless, adjectives of the type of *chanceux* 'lucky' cannot be treated as factive emotive adjectives. Two arguments will be given here in support of this claim. Firstly, adjectives of the *chanceux* type are incompatible with a phrase headed by the noun *fait* 'fact' (73a), unlike factive emotive adjectives (73b).

(73) a. *Jean est chanceux du fait que Marie l' ait aidé.
Jean is lucky of-the fact that Marie him help.SUBJ
b. Jean est content du fait que Marie l' ait aidé.
Jean is glad of-the fact that Marie him help.SUBJ
'Jean is glad of the fact that Marie helped him.'

Secondly, adjectives of the type of *chanceux* 'lucky' cannot appear with *de ce que* (lit.: 'of it that') clauses, as shown in (74a). This contrasts with factive emotive adjectives (74b).

(74) a. *Jean est chanceux de ce que Marie vienne à la fête.
Jean is lucky of it that Marie come.SUBJ to the party
b. Jean est content de ce que Marie vienne à la fête.
Jean is glad of it that Marie come.SUBJ to the party
'Jean is glad that Marie will come to the party.'

In brief, the properties of *chanceux* 'lucky' type of adjectives show that they cannot be assimilated to the class of factive emotives: the non-finite or tensed clause with which they occur, albeit denoting a presupposed *event*, is an adjunct. This *event* functions as the speaker's rationale for attributing a given property to an individual, a property which is entirely bounded to this *event* (hence the stage-level interpretation when the clause is realized).

5.2 Moral quality adjectives

The analysis provided for *chanceux* 'lucky' type of adjectives also applies, in broad strokes, to adjectives describing moral qualities, such as *courageux* 'courageous', *honnête* 'honest' and *sage* 'wise'. Adjectives belonging to this class all pertain to mores or rules of conduct accepted in a society. As seen in (64), they can only be followed by a non-finite phrase, which is characteristic of effective adjectives. In addition, they are not compatible with infinitival phrases denoting stative situations, as illustrated in (75), which is also a typical property of adjectives of the effective class.

(75) *Jean est stupide d'être grand / de ressembler à sa mère.
Jean is stupid to be.INF tall / to resemble at his mother.

I will show that the infinitival phrase with moral quality adjectives, in constructions such as those in (64), cannot be analyzed as a selected element. As with *chanceux* 'lucky', the sequence following moral quality adjectives is an adjunct. Several facts give support to this analysis. For instance, the infinitival phrase with moral quality adjectives cannot be replaced by a pronoun, as shown in (76), and cannot be questioned by means of an interrogative introduced by *de quoi* (lit.: 'of what'), as illustrated in (77).

(76) a. *Jean en est très gentil, de nous inviter à souper.
Jean of-that is very nice to us invite.INF to dine

b. *Marie en est prudente, d'emprunter cette route.
Marie of-that is cautious to take that road

(77) a. *De quoi Jean est-il gentil?
of what Jean is-he nice

b. *De quoi Marie est-elle prudente?
of what Marie is-she cautious

In Section 4, it was shown that effective adjectives do not always present the behavior of internal arguments: pronominalization and direct questioning of the infinitival complement are excluded in some cases. I argued that this "rebel" behavior of effective adjectives is attributable to the fact that they form a complex predicate with their infinitival complement. Since the adjective and the non-finite complement constitute a single event or acts as a single unit, the impossibility of pronominalization and direct questioning follows. The facts in (76) and (77) are not particularly revealing since the behavior of moral quality adjectives in these cases could be taken either as indicating that their infinitival phrase is an adjunct or as indicating that they do indeed belong to the effective class. The consideration of other properties manifested by moral quality adjectives will lead me to conclude that the former option is the only possible one. Unlike the infinitival phrase that follows effective adjectives, the non-finite sequence with moral quality adjectives cannot be replaced by a nominal phrase denoting an *action*. This contrast is shown in (78) and (79).

(78) a. Jean est sage de partir. / *Jean est sage de ce départ.
Jean is wise to leave.INF / Jean is wise of that departure

b. Jean a été sot d'être intervenu. / *Jean a été sot
Jean was stupid to intervene.PST.INF / Jean was stupid
de cette intervention.
of that intervention

(79) a. Jean est capable de témoigner de la générosité. / Jean est capable de générosité.
Jean is able to demonstrate.INF of the generosity / Jean is able of generosity

b. Jean est avide de se venger. / Jean est avide de vengeance.
Jean is avid to REFL get.even.INF / Jean is avid of revenge

Moreover, the presence of the infinitival phrase is entirely optional with moral quality adjectives; *courageux* 'courageous' can appear with (80a) or without (80b) the non-finite sequence.

(80) a. Jean est courageux de partir seul en montagne.
Jean is courageous to leave.INF alone in mountain
'Jean is courageous to go by himself in the mountains.'

b. Jean est courageux.
Jean is courageous
'Jean is courageous.'

Although the non-finite phrase can be omitted in some cases with effective adjectives, an *action* is always implicit. Hence, in the sentence in (81), a particular *action*, which is inferred from the context, is implied.

(81) Tu es capable!
you are able
'You can do it!'

In (80b), where *courageux* 'courageous' appears without an infinitival phrase, the adjective expresses a permanent property of the subject; it functions as an individual-level predicate. When *courageux* 'courageous' and other moral quality adjectives are followed by an infinitival phrase, the adjective is used as a stage-level predicate: the property denoted by the adjective is in this case limited to a particular *action*. In other words, in a sentence like (80a), the adjective denotes a property of an individual that is inferred from an *action*. The speaker judges that the *action* in question is a particular manifestation of the property. Basically, the semantic role of the infinitival phrase with moral quality adjectives is comparable to that of the tensed or infinitival clause with *chanceux* 'lucky' type of adjectives.

The facts discussed above all conspire to show that the infinitival phrase that can occur with moral quality adjectives is an adjunct (for a similar analysis see Bennis 2000; Meunier 1999; Riegel 1997).[25] This adjunct denotes an *action* of a particular

25. Stowell (1991) notes that the infinitival phrase with moral quality adjectives, which he terms "mental property adjectives", does not behave as an internal argument; however, he does not conclude that the infinitival phrase is an adjunct. Rather, he proposes that it is an external

nature: it has to be an *action* that can be controlled, that is, an *action* that the referent in subject position performs willingly. The notion of control and agentivity is fundamental in the characterization of these adjectives. In fact, a moral judgment concerning an individual can only be made if the individual in question decides to execute the action. Thus, with these adjectives, the infinitival phrases cannot express passive actions (82) nor can they express actions that normally occur accidentally, like instantaneous changes of state (83).

(82) a. *Jean est stupide d'avoir été mordu par le chien.
Jean is stupid to bite.PST.PSV.INF by the dog

b. *Jean est courageux d'avoir été frappé par la balle.
Jean is courageous to hit.PST.PSV.INF by the ball

(83) a. *Jean a été gentil de trouver son stylo.
Jean was nice to find.INF his pen

b. *Jean a été intelligent de gagner le prix Nobel.
Jean was intelligent to win.INF the prize Nobel

With moral quality adjectives, the performance of the action must result from a choice made by the individual. Hence, the sentences in (82) are not grammatical unless an active meaning for the infinitival clause is intended, such as in cases where Jean let the dog bite him and Jean let the ball hit him (deliberate or controlled actions). With adjectives of the type of *chanceux* 'lucky', it is exactly the opposite that holds. The *event* denoted by the infinitival or tensed clause with *chanceux* 'lucky' and similar adjectives has to be uncontrollable. Consider (84).

(84) a. Jean a été chanceux de trouver la bague.
Jean was lucky to find.INF the ring
'Jean was lucky that he found the ring.'

b. Jean a été chanceux qu'il ait aperçu Marie.
Jean was lucky that he notice.SUBJ Marie
'Jean was lucky that he noticed Marie.'

The situations denoted by the infinitival or tensed clause in (84) cannot be willed. They happened accidentally, without anyone being responsible for them. Thus, although the sequence following moral quality adjectives and adjectives of the type of *chanceux* 'lucky' is an adjunct that has a similar semantic role (it constitutes the speaker's justification for his attribution of a property to an individual), it corresponds to different

argument. In the analysis he provides, when mental property adjectives are followed by an infinitival phrase, they are dyadic predicates: they select two external arguments (one realized in subject position and one realized in object position).

types of entities. In the case of moral quality adjectives, the sequence denotes an *action* that has to be under the control of the referent in subject position. With adjectives of the type of *chanceux* 'lucky', the sequence denotes an *event* that has to be out of the control of the referent in subject position. These facts are not surprising if we consider the meaning of adjectives such as *chanceux* 'lucky' and *malchanceux* 'unlucky'. Essentially, luck and misfortune are unpredictable. The *events* involved with these adjectives have to occur accidentally or by chance: they have to be uncontrollable.

I would like to point out that all the adjectives describing moral qualities can also occur in impersonal constructions, as in (85).

(85) Il est sage (de la part de Jean) de consulter un médecin.
it is wise (of the part of Jean) to consult a doctor
'It is wise (of Jean) to consult a doctor.'

In constructions like (85), the infinitival phrase, which denotes an *action*, is selected by the adjective. In this case, the property applies to the situation described in the infinitival phrase. In such constructions (impersonal constructions), moral quality adjectives should be considered as effective adjectives, whose defining property is to select an *action*. Let's recall that, in constructions such as those in (80) (which can be termed "personal constructions"), the infinitival phrase, although it denotes an *action*, is not selected by the adjectives; hence, moral quality adjectives in personal constructions are not effective adjectives per se.

Facts discussed in this section show that moral quality adjectives can be used in three main ways: to describe permanent properties of an individual (when the infinitival phrase is not realized or not implicit), to describe transient dispositions of individuals in accomplishing an action (when the infinitival phrase is realized) or to describe the action itself (when appearing in impersonal constructions).

Conclusion

The goal of this paper was to provide an overview of sentential complementation of adjectives in French. In order to account for the different syntactic types of complements with adjectives, three classes of matrix adjectives were established: propositional adjectives, which express truth-value judgments, emotive adjectives, which express subjective judgments, and effective adjectives, which describe the relationship of a subject with respect to the performance of an action. Extending Rochette's (1988) analysis, I proposed that adjectives of each class select a particular semantic category or ontological category (*proposition*, *event*, *action*) as their argument, which corresponds in syntax to a particular projection. A *proposition* is realized in syntax as a COMP projection, which allows the choice of an infinitival clause as well as of a tensed clause in the

indicative. An *event* is realized as an INFL projection, which accounts for the possibility of an infinitival complement or a tensed complement in the subjunctive. An *action* is realized as a projection of the V category, which allows only for the possibility of tenseless complements. A number of differing properties between complements of the three classes of adjectives can be accounted for by the difference in structure. In particular, characteristics of constructions in which effective adjectives participate show that the complements of some of these adjectives are reduced and that they form a complex predicate with their selecting adjective.

One of the main subjects that was raised with propositional and emotive adjectives was that of factivity. In complementation studies, factivity is a crucial notion for it accounts for numerous distinct properties among predicates that select tensed complements. I have shown that, although it plays an important role in explaining the different characteristics presented by emotive adjectives, factivity fails to account for the facts with propositional adjectives: non-factive propositional adjectives, like factive propositional adjectives, prohibit extraction out of their complements. I proposed to account for the opaque character of complements of non-factive propositional adjectives by resorting to a pragmatic concept, dominance, which stipulates that only elements that can receive a dominant (salient) reading in a discourse can be extracted. Complements of propositional adjectives, factive as well as non-factive, never receive a dominant reading, accounting therefore for the impossibility of extraction.

In other respects, special attention was given to "impostor" adjectives which present certain characteristics of sentential-taking adjectives, but cannot be treated as such since the tensed clause or the infinitival clause with which they can occur, although denoting an *event* or an *action*, is not selected by these adjectives.

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Spanish adjectives within bounds

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The present paper reexamines the relationship between the two Spanish copulas *ser* "be" and *estar* "be.LOCATIVE" and the i-level/s-level contrast. It is shown that the compatibility with the copulas does not yield an adequate classification of adjectives as i-level or s-level, if this distinction is defined in terms of boundedness. Additional criteria for boundedness have to be taken into account, namely the compatibility (i) with certain pseudo-copular verbs, (ii) with adjunct predicates and (iii) with absolute constructions. Adjectives like *enfermo* ('ill'), which in addition to their compatibility with ESTAR can appear in all these contexts, can be properly considered bounded. Among so-called ambivalent adjectives at least two types can distinguished: *nervioso* ('nervous') type adjectives are compatible with SER and are also allowed in any of the other s-level-contexts, while *viejo* ('old') type adjectives allow SER and ESTAR, but do not pass any of the other tests for boundedness. Finally, within the class of IL adjectives, it is also necessary to introduce a distinction between adjectives of behavior, like *discreto* ('discreet'), which under certain circumstances can be coerced to appear with *estar*, and relational adjectives like *vegetariano* ('vegetarian'), which cannot be coerced.

1. Introduction

Spanish (along with other Romance languages, such as Portuguese and Catalan) has two copular verbs, SER and ESTAR, to express what in other languages (e.g. French or English) is expressed via a single copula. Hence, in French we find *Adán est intelligent* and also *Eva est malade*, and in English *Adán is intelligent* and *Eva is ill*, in every case using the same copular verb (*être* in French and *to be* in English). However, in Spanish we find *Adán es inteligente*, but not **Eva es enferma*; rather, we find *Eva está enferma*. In a way, we could say that Spanish categorizes illness as something subject to temporal limits which are not applied to intelligence.

Probably, the most widespread way of trying to explain this phenomenon is by means of the well-known dichotomy between individual-level (IL) and stage-level (SL) predicates: IL adjectives combine with SER, while SL adjectives combine with ESTAR. In this paper, however, it is claimed that for an adjective to be considered IL or SL, compatibility with SER or ESTAR is not a deciding criterion. Other grammatical contexts

which have been shown to be sensitive to the IL/SL distinction in Spanish (Escandell & Leonetti, 2002; Marín, 2000; 2004) also have to be taken into account.

For example, an adjective like *enfermo*, in addition to be compatible with ESTAR (*Eva está/*es enferma*), can appear in other SL contexts such as *Llegó a su casa enferma* ('She arrived home sick') or *Con el niño enfermo, no podremos salir de viaje* ('With the child sick, we will not be able to go on a trip'), while another adjective such as *inteligente*, which can only combine with SER (*Adán es/*está inteligente*), cannot appear in such contexts: **Llegó a su casa inteligente* ('S/he arrived home intelligent'); **Con el niño inteligente, no podremos salir de viaje* ('With the child intelligent, we will not be able to go on a trip'). As we will see, such a procedure will be especially appropriate when dealing with adjectives of the type *nervioso* ('nervous') or *gordo* ('fat'), which are compatible with both SER and ESTAR.

The paper is structured as follows. Section 2 consists of a brief introduction to the problem of aspectual analysis which SER and ESTAR + adjective constructions present. In the subsequent three sections, three different groups of adjectives are examined: in Section 3, SL adjectives; in Section 4, so-called ambivalent adjectives, and in Section 5, IL adjectives. Finally, Section 6 summarizes the conclusions drawn from this work.

2. The aspect of adjectives

Lexical aspect has traditionally concentrated on the study of verbal predication, such that other grammatical categories like adjectives, PPs or adverbs, which can also constitute predicative nuclei, have not received the attention they deserve. In the concrete case of adjectives, the (few) works in which the possible aspectual valence of adjectives is specifically addressed (e.g. Lakoff, 1970; Luján, 1981; Parsons, 1990; Rothstein, 1999) agree that they denote states, although not always the same type of state.[1]

Nevertheless, as pointed out above, the distinction between individual-level (IL) and stage-level (SL) predicates (Carlson, 1977; Kratzer, 1995) is the most widespread way of dealing with the aspectual meaning of adjectives. However, there is no general agreement on the definition of the IL/SL dichotomy. Here, we will apply it exclusively to states, and we will differentiate between IL states and SL states, thereby underlining the aspectual character of such a distinction, relative to the absence (IL states) or existence (SL states) of internal temporal limits associated with adjective denotation (Marín, 2004; Marín & McNally 2005).

As a starting point, we will adopt the definition of state given by Schmitt (2005) and Schmitt and Miller (2007), modified from Smith (1991):

(1) Every subinterval I' of an Interval I where a state is true is also an interval where the same state is true.

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1. Rothstein (1999) argues that adjectives refer to mass states, while the denotations of stative verbs are count.

However, to ensure that the definition in (1) is only applied to states – both states and processes are homogeneous (Bach, 1986) – we will postulate, following Rothstein (2004) that states are strongly homogeneous:

(2) If a predicate is homogeneous then *x P-ed for y time* ENTAILS that at any time during y, *x P-ed* was true.

The idea is that states, unlike processes, do not allow for gaps in their denotation.[2] This way, the state denoted by *Jordi is Catalan* is true at any time, however brief, during that state.

In this paper, it will be assumed that the only difference between IL and SL states is related to their bounded or unbounded nature: SL states refer to a bounded state, a state which is by definition a stage, a period; for IL states, the inference of temporal persistence applies.[3] Following McNally (1994), it will be assumed that this inference of temporal persistence for IL states also extends backwards to the past. Thus, as far as aspectual denotation is concerned, the main difference between a sentence such as *Jordi es catalán* ('Jordi is Catalan') and another such as *Jordi está borracho* ('Jordi is drunk') is that the latter refers to a bounded state while the former refers to a persistent state.

As for the compatibility of adjectives with SER and ESTAR, from a purely descriptive point of view it is widely accepted that Spanish adjectives fall into three classes (Luján, 1981; Fernández Leborans, 1999): (3), those which only combine with SER; (4), those which only allow ESTAR, and (5), those which are compatible with both copulas, respectively:

(3) a. *catalán* ('Catalan'), *cauto* ('cautious'), *constante* ('constant'), *cuidadoso* ('careful'), *(des)cortés* ('(im)polite'), *(des)leal* ('(dis)loyal'), *(im)prudente* ('(im)prudent'), *(in)discreto* ('(in)discreet'), *(in)capaz* ('(in)capable'), *(in)*

2. Rothstein (2004: 14) gives a detailed explanation: "Although it is a real world fact that, for example, the quality of John's love for Mary may change over twenty years, this is not encoded in *John loved Mary for twenty years*. [...] *John loved Mary for twenty years* entails that at any time during those twenty years he loved her (allowing for contextually irrelevant pauses, which we shall discuss when we get to activities). States are unqualified homogeneous since they are homogeneous down to instants. If John loved Mary for twenty years (without any pauses), then he loved her at each instant during that twenty-year period, and there is in principle no subpart of that period which is too small to contain an event which will verify *John love Mary*. And if John believed in the afterlife till the age of twenty-five, the sentence *John believed in the afterlife* was true at any instant during that interval, no matter how small. So stative eventualities are homogeneous down to instants and contrast with the other atelic eventuality type (activities), since we cannot say that *John ran* is true at an instant, but only at an interval, although a very small one".

3. As Condoravdi (1992: 9) points out: "Individual-level predicates are associated with an inference of temporal persistence, stage levels are not. The inference of temporal persistence in effect specifies the following: if an eventuality is going on at time *t* and you have no information that it is not going on at some later time *t'*, then infer that it is going on at that later time *t'* as well. Note that this is a default inference, surfacing only if there is no information to the contrary".

justo ('(un)just'), *inmoral* ('immoral'), *(in)mortal* ('(im)mortal'), *inteligente* ('intelligent'), *listo* ('clever'), *llevadero* ('bearable'), *sabio* ('wise'), *socialista* ('socialist'), *temerario* ('reckless'), *vegetariano* ('vegetarian').

b. Juan {es/*está} leal/ inmoral/ inteligente/ odioso.
Juan {is/is} loyal/ immoral/ intelligent/ hateful.
'Juan is loyal/immoral/intelligent/hateful.'

(4) a. *absorto* ('absorbed'), *angustiado* ('anguished'), *asombrado* ('amazing'), *ausente* ('absent'), *contento* ('content'), *desnudo* ('naked'), *descalzo* ('barefoot'), *enfermo* ('ill'), *enojado* ('angry'), *harto* ('fed up'), *lleno* ('full'), *maltrecho* ('hurt'), *muerto* ('dead'), *perplejo* ('perplexed'), *presente* ('present'), *quieto* ('calm'), *satisfecho* ('satisfied'), *solo* ('alone'), *vacío* ('empty').

b. Eva {está/*es} contenta/ enferma/ perpleja/ sola.
Eva {is$_{LOC}$/is} content/ ill/ perplexed/ alone.
'Eva is content/ill/perplexed/alone.'

(5) a. *alegre* ('happy'), *alto* ('tall'), *amplio* ('wide'), *(a)normal* ('ab)normal'), *bajo* ('short'), *estrecho* ('narrow'), *feliz* ('happy'), *feo* ('ugly'), *flaco* ('thin'), *gordo* ('fat'), *grande* ('big'), *hermoso* ('beautiful'), *inquieto* ('restless'), *joven* ('young'), *libre* ('free'), *nervioso* ('nervous'), *pequeño* ('small'), *orgulloso* ('proud'), *tranquilo* ('tranquil'), *viejo* ('old'), *vivo* ('alive').

b. Tu hermano {es/está} alegre/ gordo/ inquieto/ nervioso.
Your brother {is/is$_{LOC}$} happy/ fat/ restless/ nervous.
'Your brother is happy/fat/restless/nervous.'

In descriptions of Spanish, the adjectives in (3) are called IL adjectives; those in (4), SL adjectives, and those in (5), ambivalent (IL/SL) adjectives. Nevertheless, as a consequence of the present work's main claim (for an adjective to be considered IL or SL, in addition to SER/ESTAR alternation, other grammatical contexts have to be taken into account), this division will be considerably qualified.

3. Stage-level adjectives

Along with ESTAR constructions, we find several contexts in Spanish that also demand a temporally bounded denotation to their possible adjectival complements, such as pseudo-copular verbs, adjunct predicates or absolute constructions. In this section, the different behavior between IL adjectives, (3), and SL adjectives, (4), across these different contexts is discussed.

3.1 Pseudo-copular verbs

Besides copular verbs, Spanish has a wide set of verbs usually called *pseudo-copular* verbs. Generally, these are verbs that have lost all or at least a large part of their lexical

meaning, which has been grammaticalized such that they are at present closer to auxiliary verbs than real lexical verbs, and in particular to *copular* verbs.[4]

Some, such as PARECER ('to seem') or SENTIRSE ('to feel') do not seem to present any aspectual constraint. Others, such as IR ('to go'), ANDAR ('to walk'), LLEVAR ('to carry'), QUEDARSE ('to remain') or SEGUIR ('to continue'), which will be called *restrictive pseudo-copular* verbs, do present clear aspectual constraints; in essence, the same restrictions as with ESTAR.

As already indicated, one of the defining characteristics of pseudo-copular verbs is the loss – or, at the very least, weakening – of their lexical meaning. This is the case for verbs like IR, VENIR or ANDAR, for instance, which, when used as pseudo-copulas, have lost all or a large part of their "motion" meaning.

In terms of their aspectual constraints, these three verbs, like ESTAR, naturally combine with SL adjectives, but not with IL ones, as shown in the following examples:

(6) a. Juan va/ viene borracho.
Juan goes/ comes drunk
'Juan is drunk.'

b. Anda contento.
walks content
'He is content.'

(7) a. *Juan va/ viene inteligente.
Juan goes/ comes intelligent
'Juan is intelligent.'

b. *Anda discreto.
walks discreet
'He is discreet.'

Two other verbs, LLEVAR and QUEDAR(SE), also lose their literal meaning of movement when used as pseudo-copulas. Both accept SL adjectives, (8), as complements, but not IL ones, (9):

(8) a. Madonna lleva contenta una hora.[5]
Madonna carries content an hour
'Madonna has been content for an hour.'

b. Se ha quedado contento.
SE has remained content
'He has ended up content.'

4. See Porroche (1990) and Morimoto and Pavón (2005, 2007) for a detailed discussion of the pseudo-copular character of these verbs.

5. As a pseudo-copular verb, LLEVAR imposes the strong syntactic requirement that it must be accompanied by a temporal complement: compare (8) with **Madonna lleva contenta* ('Madonna carries content'); **Santiago lleva alegre* ('Santiago carries happy').

(9) a. *Javier lleva inteligente/ injusto mucho tiempo.
Javier carries intelligent/ unjust much time
'Javier has been intelligent/unjust for a long time.'

b. *Se ha quedado injusto.
SE has remained unjust
'He has ended up unjust.'

The semi-copulas SEGUIR and CONTINUAR include clear presuppositional connotations in their meaning (e.g. Bosque, 1990; Porroche, 1990). In some way, by using SEGUIR or CONTINUAR in place of ESTAR or another pseudo-copular verb, one is making a point of the fact that a given situation – contrary to what might be expected – has not changed. Both SEGUIR and CONTINUAR naturally combine with SL adjectives, but not with IL ones:

(10) a. Juan sigue perplejo.
Juan continues perplexed
'Juan continues to be perplexed.'

b. Continúa absorto.
continues absorbed
'He continues to be absorbed.'

(11) a. *Sigue inteligente.
continues intelligent
'He continues to be intelligent.'

b. *Continúa discreto.
continues discreet
'He continues to be discreet.'

Other restrictive pseudo-copular verbs, i.e. PERMANECER ('to remain'), MANTENERSE ('to maintain (oneself)'), HALLARSE ('to find (oneself)') and ENCONTRARSE ('to find (oneself)'), when in combination with adjectives, behave also identically to ESTAR: they accept SL adjectives as predicates, but not IL ones. This can be seen in the following examples:

(12) a. Permanece/ se mantiene absorto.
remains/ SE maintains absorbed
'He is still/remains absorbed.'

b. Se halla/ se encuentra ausente.
SE finds/ SE finds absent
'He is absent.'

(13) a. *Permanece/ se mantiene injusto.
remains/ SE maintains unjust
'He is still/remains unjust.'

b. *Se halla/ se encuentra cauto.
SE finds/ SE finds cautious
'He is cautious.'

The data reviewed throughout this section show that all restrictive pseudo-copular verbs without exception behave identically to ESTAR in the selection of adjectives.

3.2 Predicative complements

As several authors have shown (Hernanz, 1988; Bosque, 1989, 1990; Leonetti, 1994; Demonte & Masullo, 1999, to name just a few), subject predicative complements must necessarily denote SL situations.

The following contrasting pair of sentences, adapted from Leonetti (1994), shows that IL adjectives are unable to function as adjunct predicates of the subject, (b), while SL ones can, (a):

(14) a. Ernesto llegó a su casa harto/ furioso/ borracho/ enfermo.
Ernesto arrived at his house fed up/ furious/ drunk/ sick
'Ernesto arrived at his house fed up/furious/drunk/sick.'

b. *Ernesto llegó a su casa inteligente/ francés/ alto/ despreciable.
Ernesto arrived at his house intelligent/ French/ tall/ scorned
'Ernesto arrived at his house intelligent/French/tall/scorned.'

Other constructions that impose clear aspectual constraints are those formed by a verb like TENER ('to have') or DEJAR ('to leave'), which require the presence of an object-oriented predicate:[6]

(15) Tiene sucia la camisa.
has dirty the shirt
'His/her shirt is dirty.'

The behavior of TENER and DEJAR is similar to that observed with ESTAR, the restrictive pseudo-copulas and the adjunct predicatives. They accept SL adjectives as complements, whereas IL adjectives are rejected:

(16) a. Mario tiene enfermo/ contento a su padre.
Mario has sick/ content to his father
'His father is sick of/content with Mario.'

b. Dejó perplejos/ boquiabiertos a los oyentes.
left perplexed/ open-mouthed to the listeners
'S/he left the listeners perplexed/open-mouthed.'

6. Without this predicative element, the sequence becomes ungrammatical: **Tiene sucia* ('Has dirty').

(17) a. *Tiene inteligente/ hinchable a su padre.
has intelligent/ inflatable to his father
'His father is intelligent/inflatable of him.'

b. *Ha dejado imprudentes/ discretos a los oyentes.
has left imprudent/ discreet to the listeners
'S/he has left the listeners imprudent/discreet.'

3.3 Predicative absolute constructions

Halfway between absolute constructions, e.g. *Una vez limpia la casa, cada cual se fue para su casa* ('Once the house was clean, everyone went home'), and parenthetical elements, we find other constructions, such as those in (18), which we shall call (following Dini, 1994) *predicative absolute constructions*, to distinguish them from what might properly be called *absolute constructions* (Hernanz & Suñer, 1999).

(18) a. Almodóvar, deseoso de ganar el premio, se llevó una
Almodóvar desirous of win the award SE carried a
gran desilusión.
great disappointment
'Almodóvar, desirous of winning the award, was very disappointed.'

b. Juan, maltrecho/ atónito por lo ocurrido, no podía concentrarse.
Juan hurt/ astonished by the happened no could concentrate
'Juan, hurt/astonished by what happened, couldn't concentrate.'

c. El cerdo, hambriento/ indefenso, se resignó a ser sacrificado.
the pig hungry/ defenceless SE resigned to be sacrificed
'The pig, hungry/defenceless, resigned itself to being sacrificed.'

We may observe that the adjectives in (18) are all SL. IL adjectives are marginally accepted in these constructions (Marín, 1996):

(19) a. ??Tu madre, odiosa, me hace la vida imposible.
your mother hateful me makes the life impossible
'Your mother, hateful, makes my life impossible.'

b. ??Constante, tu conducta es muy comentada.
constant your conduct is very commented
'Constant, your conduct is very much commented on.'

c. ??Pierre, francés, se adaptó bien a nuestras costumbres.
Pierre, French, SE adapted well to our customs
'Pierre, French, adapted well to our customs.'

However, none of these adjectives allow the modification of *una vez* 'once' or *ya* 'already', adverbs which refer to the absolute value of the construction. This once

again highlights the differences that separate them from SL adjectives. In this concrete aspect, we can compare the ungrammaticality which IL adjectives induce in (20) with the acceptability of SL adjectives in (21):

(20) a. *Julia, una vez inteligente y precavida, resolvió el problema.
Julia one time intelligent and cautious resolved the problem
'Julia, once intelligent and cautious, resolved the problem.'

b. *Una vez inteligente, Esteban demostró sus cualidades.
one time intelligent Esteban demonstrated his qualities
'Once intelligent, Esteban showed his (true) qualities.'

c. *Joaquín, una vez cortés, se comportó como debía.
Joaquín one time polite SE behaved as should
'Joaquín, once polite, behaved as he should.'

(21) a. Una vez solos, decidimos pasar a la acción.
one time alone decided.1PL pass to the action
'Once alone, we decided to act.'

b. Al conferenciante, una vez borracho, no se le
to-the speaker one time drunk no SE to-him
entendía una sola palabra.
understood a single word
'Once drunk, no one could understand a single word the conference participant was saying.'

c. Esteban, ya exhausto, era incapaz de seguir peleando.
Esteban already exhausted was incapable of continue fighting
'Esteban, already exhausted, was incapable of continuing to fight.'

3.4 Absolute constructions introduced by *con*

Within the set of absolute constructions in Spanish, those that are introduced by the preposition *con* ('with') constitute a group with its own characteristics. In particular – and unlike the properly named absolute constructions – the predicative element (whether it be a participle, adjective, or PP) precedes the NP that it modifies. Suñer (1988) provides, among others, the following examples:

(22) a. Murieron con las botas puestas.
died with the boots put
'They died with their boots on.'

b. En verano va con el pelo suelto.
in summer goes with the hair loose
'In summer s/he wears her/his hair down.'

c. En la mesa quiero veros con las manos limpias.
in the table want to.see.you with the hands clean
'At the table I want to see you with your hands clean.'

Nevertheless, given that one might doubt the absolute character of the constructions in (22),[7] it seems preferable to use examples of the type in (23), taken from Fernández Leborans (1995), in which the construction introduced by *con* appears in a peripheral position, and sufficiently separated from the matrix clause that it modifies to put into question its absolute nature:

(23) a. Con las ventanas cerradas, no se respira bien.
with the windows closed, no SE breathes well
'One can't breathe well with the windows closed.'

b. Con Juan enfermo, la vida no es como antes.
with Juan sick, the life no is like before
'With Juan sick, life is not the same (as before).'

Upon examining the aspectual restrictions that these constructions impose on the possible adjectives that can appear in them, we once again see a clear difference between SL and IL adjectives, since only the former produce grammatical sequences:

(24) a. Con los participantes totalmente exhaustos, el concurso no
with the participants totally exhausted, the contest no
podía continuar.
could continue
'With the participants totally exhausted, the contest could not continue.'

b. Con el chófer borracho, mejor que no continuemos el viaje.
with the driver drunk, better that no continue the trip
'With the driver drunk, it's better that we not continue the trip.'

c. Con el niño enfermo, no se puede trabajar.
with the child sick, no SE can to work
'With the child sick, one cannot work.'

(25) a. *Con Juan tímido, será difícil sortear esos obstáculos.
with Juan timid, will be difficult to overcome those obstacles
'With Juan timid, it will be difficult to overcome those obstacles.'

b. *Con tu hermana cortés, la reunión será un éxito.
with your sister polite, the meeting will be a success
'With your sister polite, the meeting will be a success.'

c. *Con Felipe temerario, perderán las elecciones.
with Felipe rash, will lose the elections
'With Felipe rash, they will lose the election.'

7. Leonetti (1994) or Fernández Leborans (1995) consider them small clauses.

The comparative analysis realized thus far permits us to confirm that, as previously announced, various grammatical domains behave similarly – and sometimes identically – to ESTAR.

	IL adjective	**SL adjective**
Restrictive pseudo-copular verb	no	yes
Predicative adjunct	no	yes
TENER and DEJAR	no	yes
Una vez + predicative AC	no	yes
Con construction	no	yes
ESTAR	no	yes
SER	yes	no

These results provide additional evidence for determining the aspectual denotation of adjectives. This is especially relevant because, as we will see, the compatibility with SER and/or with ESTAR is not as reliable a criterion as it is usually assumed to be.

4. Ambivalent adjectives

As pointed out before, a large number of adjectives, such as those in (5) repeated here as (26), are compatible both with SER and with ESTAR, (27):

(26) *alegre* ('happy'), *alto* ('tall'), *amplio* ('wide'), *(a)normal* ('ab)normal'), *bajo* ('short'), *estrecho* ('narrow'), *feliz* ('happy'), *feo* ('ugly'), *flaco* ('thin'), *gordo* ('fat'), *grande* ('big'), *hermoso* ('beautiful'), *inquieto* ('restless'), *intranquilo* ('worried') *joven* ('young'), *libre* ('free'), *nervioso* ('nervous'), *pequeño* ('small'), *orgulloso* ('proud'), *tranquilo* ('tranquil'), *viejo* ('old'), *vivo* ('alive').

(27) Tu hermano {es/está} alegre/ gordo/ inquieto/ nervioso.
your brother {is/is$_{LOC}$} happy/ fat/ restless/ nervous
'Your brother is happy/fat/restless/nervous.'

This is why these adjectives are traditionally considered to be ambivalent, i.e. they are underspecified with respect to IL/SL feature. Nevertheless, if other criteria are examined in addition to the compatibility with SER and ESTAR, among these adjectives at least two classes have to be distinguished, those resembling *nervioso*, (28), which are allowed in any SL context, and those resembling *viejo*, (29), which are not.

(28) *alegre* ('happy'), *feliz* ('happy'), *inquieto* ('restless'), *intranquilo* ('worried') *nervioso* ('nervous'), *tranquilo* ('tranquil').

(29) *alto* ('tall'), *bajo* ('short'), *estrecho* ('narrow'), *feo* ('ugly'), *flaco* ('thin'), *gordo* ('fat'), *grande* ('big'), *hermoso* ('beautiful'), *joven* ('young'), *pequeño* ('small'), *viejo* ('old').

Observe that the adjectives in (28) are possible complements of restrictive pseudo-copular verbs, while those in (29) are not:

(30) a. Va/ anda muy nervioso.
goes/ walks very nervous
'He is very nervous.'

b. Lleva inquieto un buen rato.
carries restless a long time
'He has been restless for a long time.'

c. Sigue intranquilo.
continues worried
'He continues to be worried.'

(31) a. *Robin va/ anda viejo.
Robin goes/ walks old
'Robin is old.'

b. *Lleva feo varios años.
carries ugly several years
'He has been ugly for several years.'

c. *Sigue bajo.
continues short
'He continues to be short.'

Similar behavior is observed for the rest of the SL contexts: adjunct predicates, (32), object complements of TENER and DEJAR, (33), absolute constructions, (34), and *con* constructions, (35). In all of them only *nervioso*-type adjectives are allowed:

(32) a. Llegó a su casa nervioso/ intranquilo.
arrived at his house nervous/ worried
'He arrived at his house nervous/worried.'

b. *Llegó a su casa bajo/ feo.
arrived at his house short/ ugly
'He arrived at his house short/ugly.'

(33) a. Tenías a tu madre nerviosa/ intranquila.
had.2SG to your mother nervous/ worried
'You had your mother nervous/worried.'

b. *Tenías a tu madre baja/ fea.
had.2SG to your mother short/ ugly
'You had your mother short/ugly.'

(34) a. Batman, una vez nervioso/ intranquilo, …
Batman, one time nervous/ worried, …
'Batman, once nervous/worried, …'

b. *Robin, una vez bajo/ feo, …
Robin, one time short/ ugly, …
'Robin, once short/ugly, …'

(35) a. Con el jefe nervioso/ intranquilo, no se puede trabajar.
with the boss nervous/ worried, not SE can work
'With the boss nervous/worried, one cannot work.'

b. *Con el jefe bajo/ feo, no se puede trabajar.
with the boss short/ ugly, not SE can work
'With the boss short/ugly, one cannot work.'

These results, summarized in the following table, clearly indicate that among so-called ambivalent adjectives at least two groups have to be distinguished: those like *nervioso*, which are allowed in any SL context, and those like *viejo*, which are not.

	viejo	***nervioso***
Restrictive pseudo-copular verb	no	yes
Adjunct predicate	no	yes
TENER and DEJAR	no	yes
Absolute constructions	no	yes
Con construction	no	yes
ESTAR	yes	yes
SER	yes	yes

Thus, only *nervioso*-type adjectives are properly ambivalent or underspecified with respect to IL/SL feature; *viejo*-type adjectives cannot be considered such, because, as has been shown, the possibility of an adjective to combine with ESTAR does not necessarily prove its SL nature, related to a temporally bounded denotation, and *viejo*-type adjectives are not able to denote SL states.

In any case, one issue remains unexplained: why can *viejo*-type adjectives combine with SER as well as with ESTAR? In order to try to answer this question, the distinction – more pragmatic than semantic – between 'general norm' and 'individual norm' may be useful (Falk, 1979; Clements, 1988).

The idea of general norm, expressed via SER, indicates a comparison between one entity and others of its same class; in this case, it is the intention of the speaker to classify the entity referred to according to some general criteria valid in a particular culture or society. On the other hand, the idea of individual norm, referred to via ESTAR, describes a comparison between the actual state of an entity and the state that one could expect as normal or habitual. From this perspective, it is the intention of the speaker to classify an entity in relation to an individual criterion, exclusively applicable to said entity.

From this proposal it follows, therefore, that constructions with SER assign qualitative properties to the subject according to a general norm of classification, whereas constructions with ESTAR attribute individual characteristics to the subject, considered

deviations from what is considered normal for said subject. It is this difference which examples such as the following one, taken from Leonetti (1994), emphasize:

(36) La carretera es/ está ancha.
the highway is/ is_{LOC} wide
'The highway is wide.'

As Leonetti (1994: 199) puts it: "With *ser* one is classifying the mentioned entity within the class of wide highways, comparing it to other highways whose qualities may be different; with *estar* one is presenting the entity according to the norm which one supposes it habitually possesses, and the variation between these differing states circumscribes that very entity." Contrasting sentences like those of (37) also reflect this type of difference:

(37) a. Carol era/ estaba muy guapa.
Carol was/ was_{LOC} very good-looking
'Carol was very good-looking.'

b. Las naranjas son/ están muy caras.
the oranges are/ are_{LOC} very expensive
'(The) oranges are very expensive.'

Nevertheless, despite its utility in expressing these and other differences in meaning, the distinction between general norm and individual norm is not entirely exempt from problems. According to Porroche (1988), some adjectives, such as those relating to colors or marital status, are difficult to explain via such a distinction because no norm exists with regard to color or people's marital status.

Leaving aside these and other problems that the distinction between general and individual norm presents, one must recognize that the distinction is particularly useful for describing certain uses of SER and ESTAR, especially in those cases of the same adjective, where the speaker can freely choose between one copula or the other. For the cases in which the speaker has no choice, however, it does not seem logical to resort to the distinction between general and individual norm.

Maienborn's (2005) discourse-based account of the SER/ESTAR alternation includes an interesting formalization of the general/individual norm distinction in the DRT framework. (38) is the DRS for an imperfective SER sentence such as *Carol era muy guapa*, which can be compared with that of (39), corresponding to an imperfective ESTAR sentence such as *Carol estaba muy guapa*:

(38) $[t^0, s^*, z, v \mid \tau(s^*) < t^0, \tau(s^*) \subset \tau(z), z \approx [\text{pretty}(v)], \text{carol}(v)]$

(39) $[t^0, s^*, z, v \mid \tau(s^*) < t^0, s_i = s^*, \tau(s^*) \subset \tau(z), z \approx [\text{pretty}(v)], \text{carol}(v)]$

As pointed out by Maienborn (2005), both sentences are true if there is a state of Carol being pretty whose temporal extension includes a contextual topic time that precedes the utterance time. (39) requires an additional condition: the contextually supplied

topic situation is required to be specific, i.e. the speaker's claim is restricted to a particular discourse situation already in mind.

The problem is that Maienborn (2005) considers that "in principle, both SER and ESTAR can combine with any predicate whatsoever" and, therefore, that her analysis applies to any predicate. And this is wrong. On the one hand, as we have already seen, there is a group of adjectives, (4), that only combine with ESTAR; they cannot combine with SER under any circumstance:

(40) a. *Juan es contento/ desnudo/ harto.
Juan is content/ naked/ fed up
'Juan is content/naked/fed up.'

b. *La sala es llena/ vacía.
the room is full/ empty
'The room is full/empty.'

On the other hand, as we will see, only a subclass of IL adjectives can combine with ESTAR, and this only under certain circumstances.

5. Individual-level adjectives

In this section it will be shown that among IL adjectives, fundamentally due to their different grade of compatibility with ESTAR, it is necessary to distinguish among relational adjectives, which cannot be easily coerced to appear with ESTAR, and so-called adjectives of behavior such as *discreto* ('discreet'), which under certain circumstances can be coerced to appear with ESTAR.

5.1 By coercion

A substantial number of IL adjectives, (3), repeated here as (41), can indeed occur with ESTAR, as in (42).

(41) *catalán* ('Catalan'), *cauto* ('cautious'), *constante* ('constant'), *cuidadoso* ('careful'), *(des)cortés* ('(im)polite'), *(des)leal* ('(dis)loyal'), *(im)prudente* ('(im)prudent'), *(in)discreto* ('(in)discreet'), *(in)capaz* ('(in)capable'), *(in)justo* ('(un)just'), *inmoral* ('immoral'), *(in)mortal* ('(im)mortal'), *inteligente* ('intelligent'), *listo* ('clever'), *llevadero* ('bearable'), *sabio* ('wise'), *socialista* ('socialist'), *temerario* ('reckless'), *vegetariano* ('vegetarian').

(42) a. Hoy estás muy discreto/ valiente.
today are very discreet/ brave
'Today you are very discreet/brave.'

b. Últimamente estaba muy prudente/ sincero.
lately was very prudent/ sincere
'Lately s/he was very prudent/sincere.'

Nevertheless, for this to occur, other elements besides ESTAR must usually be present, including adverbials of the type *hoy* ('today') or *últimamente* ('lately'), which also contribute to the anchoring of the IL adjective in a temporal stage.

Following Escandell & Leonetti (2002), we will explain this phenomenon in terms of 'aspectual coercion' (Pustejovsky, 1995; Fernald, 2000).[8] Escandell & Leonetti (2002) state that, apart from a small number of cases such as *necesario* ('necessary'), *falso* ('false') or *evidente* ('evident'), most Spanish IL adjectives can be coerced by ESTAR. They even maintain that relational adjectives, as *británico* ('British') or *internacional* ('international'), are coercible as well:

(43) a. ¡Estás internacional hoy!
are$_{LOC}$.2SG international today
'You are international today!'

b. ¡Vaya! ¡Estás muy británico!
wow! are$_{LOC}$.2SG very British
'Wow! You are very British!'

Nevertheless, these examples seem somewhat exceptional[9] since, in the majority of cases, relational adjectives are anomalous: **Estás mortal hoy* ('You are mortal today'); **Estás socialista últimamente* ('You are socialist lately').

Therefore, it seems clear that within the group of IL adjectives, fundamentally due to their different grade of compatibility with ESTAR, it would be useful to introduce a distinction between nonrelational adjectives, (44), which in certain contexts can combine with ESTAR, and relational adjectives, (45), which can do this in a much more restricted way.

(44) *cauto* ('cautious'), *cuidadoso* ('careful'), *(des)cortés* ('(im)polite'), *(im)prudente* ('(im)prudent'), *(in)discreto* ('(in)discreet'), *(in)fiel* ('(un)faithful'), *(in)justo* ('(un)just'), *sincero* ('sincere'), *valiente* ('brave').

(45) británico ('British'), *catalán* ('Catalan'), *(in)mortal* ('(im)mortal'), internacional ('international'), *socialista* ('socialist'), *vegetariano* ('vegetarian').

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8. In accordance with Escandell & Leonetti (2002), "coercion is a process of reinterpretation activated to eliminate conflicts between a constituent's semantic content and the requirements of other elements in the same construction. [...] Thus, it produces some sort of conceptual adjustment in order to make sense of the utterance and restore its acceptability".

9. As Bosque (1993) points out, adjectives such as *British* or *French* can refer to the stereotype associated with these nationalities. Other nationalities, such as *Andorran* or *Guinean*, are not associated with any clear stereotype and this is why they are not compatible with ESTAR: *??Estás muy andorrano/guineano* ('You are very Andorran/Guinean'). Observe, moreover, that adjectives like *British* or *French* can only be coerced if they refer to human subjects: **Este queso está muy francés* ('This cheese is very French').

Apart from the possibility of being coerced by ESTAR, there are several pieces of evidence indicating the need to distinguish between non-relational adjectives of the type *discreto* and relational ones. Among these pieces of evidence, the possibility for *discreto*-type adjectives, as opposed to relational ones, to appear in constructions of ESTAR + gerund of SER is probably the most significant:

(46) a. Hoy estás siendo muy discreto/ valiente.
today are$_{LOC}$ being very discreet/ brave
'Today you are being very discreet/brave.'

b. Está siendo muy prudente/ sincero últimamente.
is$_{LOC}$ being very prudent/ sincere lately
'S/he is being very prudent/sincere lately.'

(47) a. *Hoy estás siendo muy británico.
today are$_{LOC}$ being very British
'Today you are being very British.'

b. *Está siendo muy internacional últimamente.
is$_{LOC}$ being very international lately
'S/he is being very international lately.'

It seems reasonable to associate the possibility for an IL adjective to appear in such constructions with the possibility of being coerced by ESTAR. In fact, ESTAR + gerund of SER could be seen as another version of the same coercion mechanism.

Fernald (2000) offers a formal analysis of the coercion of IL into SL predicates that we will adopt here to deal with *discreto*-type adjectives. In (48) a formulation of what he calls 'evidential coercion' is presented:

(48) Let α be an ILP with interpretation α'. α can be used as a SLP with the following interpretation:
$\lambda x^s \exists Q[Q(x) \& G_{y^s, z^i}(Q(y) \& R(y,z)) [\alpha'(z)]]$

As pointed out by Fernald (2000: 67), in (48): "*G* is the generic operator. The coerced predicate denotes a set of stages for which there is some stage-level property *Q* that holds of the stage, and in general, having *Q* predicated of a stage entails that the individual associated with the stage has α, the ILP, predicated of the corresponding individual."

Fernald (2000: 67) applies this formulation to examples like *Laura is often pedantic*, which is very close to the cases we are dealing with here:

> By this formulation, *?Laura is often pedantic* will be coerced into expressing the claim that often there is some stage-level eventuality, in which Laura participates, and one would generally judge the individual who participates in such eventualities to be "pedantic." The success of coercion in this case depends on the hearer's ability to imagine there being stage-level evidence of having the ILP property, which is not difficult in the case of *pedantic*.

In fact, as Fernald himself acknowledges, although it is not totally explicit in (48), the idea is that the stage-level property *Q* refers to a behavior. And this is precisely what we need in order to account for evidential coercion of Spanish *discreto*-type adjectives, which also refer to a behavior, as we will see in the following section.

5.2 Dynamic adjectives

The set of problems raised by *discreto*-type adjectives has been recognized for some time (e.g. Partee, 1977; Williams, 1984; Schmitt, 1992, 2005), although until now these have been linked almost exclusively to the properties that express agentivity in these adjectives.

Recently, Arche (2006) and Marín & Tayalati (2006) have demonstrated for Spanish that these adjectives form a separate group in that they are the only ones that denote dynamic situations, very much like what is observed in non-stative verbs. As will be shown when applying to these same adjectives the classic tests used for establishing the dynamicity of verbs, the parallels that exist between *discreto*-type adjectives (which we will call 'dynamic adjectives' henceforth), and non-stative verbs is remarkable.

Along the same lines suggested in Marín & Tayalati (2006), the tests that deal with agentivity will be separated from those that establish dynamicity. Let us start with the latter ones first.

5.2.1 *Tests for dynamicity*

Unlike dynamic verbs, (49), stative ones, (50), generally do not allow the progressive form:

(49) Jaimito está durmiendo/ paseando/ pintando un cuadro/ escribiendo su tesis.
Jaimito is sleeping/ out walking/ painting a picture/ writing his thesis
'Jaimito is sleeping/out walking/painting a picture/writing his thesis.'

(50) *Juan está queriendo a sus abuelos/ odiando a su
Juan is loving to his grandparents/ hating to his
primo/ sabiendo inglés/ teniendo muchos libros. [apud De Miguel, 1999]
cousin/ knowing English/ having many books
'Juan is loving his grandparents/hating his cousin/knowing English/having many books.'

As for adjectives, we observe a similar behavior. Dynamic adjectives are compatible with ESTAR + gerund of SER, (51); the remaining adjectives, which will be called non-dynamic, are not, (52):

(51) a. Mortadelo (le) está siendo infiel a su mujer.
Mortadelo (to-her) is being unfaithful to his wife
'Mortadelo is being unfaithful to his wife.'

b. Filemón está siendo amable/ condescendiente/ valiente.
Filemón is being nice/ obliging/ brave
'Filemón is being nice/obliging/brave.'

(52) *Batman está siendo británico/ vegetariano.
Batman is being British/ vegetarian
'Batman is being British/vegetarian.'

In accordance with De Miguel (1999), sequences of the type *(lo que) ocurrió (fue) que* ('what happened was that') only allow dynamic verbs, (53); this explains the ungrammaticality of stative verbs, (54):

(53) Lo que pasó fue que saltó la valla/ envió la carta.
what happened was that jumped the fence/ sent the letter
'What happened was that s/he jumped the fence/sent the letter.'

(54) *Lo que pasó fue que supo francés/ poseyó muchos libros.
what happened was that knew French/ owned many books
'What happened was that s/he knew French/owned many books.'

Adjectives exhibit a similar behavior: dynamic adjectives are accepted (55), while non-dynamic ones are rejected, (56):

(55) a. Lo que pasó es que (le) fue infiel a su mujer.
what happened is that (to-her) was unfaithful to his wife
'What happened is that he was unfaithful to his wife.'

b. Lo que pasó es que ha sido deshonesto/ injusto/ valiente.
what happened is that he was dishonest/ unjust/ brave
'What happened is that he was dishonest/unjust/brave.'

(56) *Lo que ha pasado es que ha sido catalán/ vegetariano.
what has happened is that has been Catalan/ vegetarian
'What happened is that he was Catalan/vegetarian.'

Dynamic verbs are compatible with *dejar*, ('to stop'), (57); stative verbs are not, (58):

(57) Jaimito dejó de saltar/ fumar/ dibujar obscenidades/ escribir la tesis.
Jaimito stopped to jump/ smoke/ draw obscenities/ write the thesis
'Jaimito stopped jumping/smoking/drawing obscenities/writing the thesis.'

(58) *Julia dejó de saber inglés/ conocer Roma/ ser alta.
Julia stopped to know English/ know Roma/ be tall
[apud De Miguel, 1999]
'Julia stopped knowing English/being familiar with Rome/being tall.'

As far as adjectives are concerned, we find this same dichotomy. Dynamic adjectives accept *dejar*, (59); the non-dynamics do not (60):

(59) a. Ha dejado a serle infiel a su mujer.
has stopped to be-to.her unfaithful to his wife
'He stopped being unfaithful to his wife.'

b. Ha dejado de ser amable/ valiente.
has stopped to be nice/ brave
'S/he stopped being nice/brave.'

(60) *Ha dejado de ser catalán/ mortal.
has stopped to be Catalan/ mortal
'He stopped being Catalan/mortal.'

As is well known, stative verbs cannot receive a habitual reading in the present tense, (62), a possibility reserved for dynamic verbs, (61):

(61) Habitualmente, Julia dibuja obscenidades/ fuma.
habitually, Julia draws obscenities/ smokes
'Habitually, Julia draws obscenities/smokes.'

(62) *Normalmente, Jaimito sabe inglés/ es alto.
normally, Jaimito knows English/ is tall
'Normally, Jaimito knows English/is tall.'

Dynamic adjectives also allow a habitual interpretation, (63), while non-dynamic ones do not, (64):

(63) a. Normalmente, es cruel con sus empleados.
normally, is cruel with her/his employees
'Normally, s/he is cruel with her/his employees.'

b. Habitualmente, es amable/ considerado.
habitually, is nice/ considerate
'Habitually, he is nice/considerate.'

(64) *Normalmente, es británico/ socialista.
normally, is British/ socialist
'Normally, he is British/socialist.'

5.2.2 *Tests for agentivity*

Dynamic verbs constitute appropriate responses to question (65), which somehow presupposes the interpretation of the subject as an agent:

(65) ¿Qué ha hecho?
'What has s/he done?'

(66) Ha paseado/ hablado en clase/ dibujado un círculo/ aprendido
has taken a walk/ spoken in class/ drawn a circle/ learned
la lección.
the lesson
'S/he has taken a walk/spoken in class/drawn a circle/learned the lesson.'

On the other hand, non-dynamic verbs (with a non-agent for a subject) do not generate valid responses for (65):

(67) *Ha amado a su mujer/ sabido matemáticas/ poseído casas/ odiado
has loved to his wife/ known mathematics/ owned houses/ hated
las acelgas.
the Swiss chard
'He has loved his wife/known mathematics/owned houses/hated Swiss chard.'

This behavior is also observed, at least in part, in the case of adjectives. Dynamic adjectives also can respond to (65); non-dynamics cannot:

(68) a. (Le) ha sido infiel a su mujer.
(to-her) has been unfaithful to his wife
'He has been unfaithful to his wife.'

b. Ha sido deshonesto/ despiadado/ amable.
has been dishonest/ heartless/ nice
'He has been dishonest/heartless/nice.'

(69) *Ha sido catalán/ vegetariano.
has been Catalan/ vegetarian
'He has been Catalan/vegetarian.'

It is established that adverbs of the type *voluntariamente* ('voluntarily') or *deliberadamente* ('deliberately') combine with dynamic verbs, but they are incompatible with stative verbs:

(70) Ana ha dibujado un círculo/ empujado a su hermano/ cruzado
Ana has drawn a circle/ pushed her brother/ crossed
la frontera voluntariamente.
the border voluntarily
'Ana has drawn a circle/pushed her brother/crossed the border voluntarily.'

(71) *Ana ha amado a su marido/ poseído dos coches/ sabido
Ana has loved her husband/ owned two cars/ known
la respuesta voluntariamente.
the answer voluntarily
'Ana loved her husband/owned two cars/knew the answer voluntarily.'

In the case of adjectives we observe a similar behavior. Thus these same adverbs are compatible with dynamic adjectives, but not with non-dynamic ones:

(72) a. Pedro le ha sido infiel a su mujer voluntariamente.
Pedro has been unfaithful to his wife voluntarily
'Pedro has been unfaithful to his wife voluntarily.'

b. Pedro ha sido deliberadamente deshonesto/ despiadado.
Pedro has been deliberately dishonest/ heartless
'Pedro has been deliberately dishonest/heartless.'

(73) *Pedro ha sido catalán/ socialista voluntariamente.
Pedro has been Catalan/ socialist voluntarily
'Pedro has been Catalan/socialist voluntarily.'

Certain verbs, like *convencer* ('to convince'), *forzar* ('to force'), *obligar* ('to oblige') or *persuadir* ('to persuade'), impinge upon the intentional character of the subject; for this reason they combine with dynamic verbs, and not with states:

(74) Batman obligó a Robin a cantar/ comprar una casa.
Batman obliged to Robin to sing/ buy a house
'Batman obliged Robin to sing/buy a house.'

(75) *Mortadelo convenció a Filemón de saber la respuesta/ odiar a
Mortadelo convinced Filemón of know the answer/ hate to
sus abuelos.
his grandparents
'Mortadelo convinced Filemón to know the answer/hate his grandparents.'

With these same verbs only dynamic adjectives are compatible; non-dynamic ones produce ungrammatical sequences:

(76) a. Mortadelo convenció a Filemón de ser(le) infiel a
Mortadelo convinced to Filemón of be(to.her) unfaithful to
su mujer.
his wife
'Mortadelo convinced Filemón to be unfaithful to his wife.'

(77) b. Astérix obligó a Obélix a ser deshonesto/ despiadado/ cuidadoso.
Astérix forced to Obélix to be dishonest/ heartless/ careful
'Astérix forced Obélix to be dishonest/heartless/careful.'

(78) *Astérix convenció a Obélix de ser catalán/ vegetariano.
Astéric convinced to Obélix to be Catalan/ vegetarian
'Astérix convinced Obélix to be Catalan/vegetarian.'

Unlike dynamic verbs, stative ones generally reject the imperative:

(79) ¡Acaríciame!/ ¡No escribas una tesis!
caress.me!/ don't write a thesis!
'Caress me!/Don't write a thesis!'

(80) *¡Conoce la respuesta!/ ¡Posee muchos coches!
know the answer!/ own many cars!
'Know the answer!/Own many cars!'

Something similar happens with adjectives. Dynamic adjectives allow the imperative, whereas non-dynamic ones do not:

(81) a. ¡Sé infiel y no mires con quién!
be unfaithful and don't look with who!
'Be unfaithful and don't look at with whom!'

b. No seas tan amable/ cuidadoso/ conciliador.
don't be so nice/ careful/ conciliatory
'Don't be so nice/careful/conciliatory.'

(82) *Sé catalán/ vegetariano.
be Catalan/ vegetarian
'Be Catalan/vegetarian.'

From the results obtained throughout this section, and summarized in the preceding table, it can be clearly seen that among Spanish IL adjectives two groups have to be distinguished: those which have a dynamic sense and those which do not.

	Dynamic adjectives	**Non-dynamic adjectives**
Progressive	yes	no
Ocurrir que	yes	no
Complement of *dejar*	yes	no
Habitual interpretation in present	yes	no
Answer to *¿qué ha hecho?*	yes	no
Voluntariamente, deliberadamente	yes	no
Convencer, obligar, persuadir, forzar	yes	no
Imperative	yes	no

This helps us to explain why dynamic adjectives, unlike non-dynamic ones, can be coerced quite easily to co-appear with ESTAR.

6. Conclusions

Contrary to what is traditionally assumed, the compatibility with SER or ESTAR is not a defining diagnosis for determining the IL or SL nature of Spanish adjectives. As has been demonstrated in this paper, additional criteria have to be taken into account, such as the ability to appear in other SL environments, such as with certain pseudo-copular verbs, adjunct predicates or absolute constructions. Adjectives like *enfermo* ('ill'), which in addition to its compatibility with ESTAR can appear in all these contexts, can be properly considered SL adjectives.

On the other hand, among so-called ambivalent adjectives (underspecified for IL/SL feature), at least two groups have to be distinguished: those like *nervioso* ('nervous')

which, in addition to their compatibility with SER, are allowed in any SL context, and those like *viejo* ('old'), which are not. That way, only *nervioso*-type adjectives can be considered as properly ambivalent.

Likewise, within the class of IL adjectives, fundamentally due to their different grade of compatibility with ESTAR, it is necessary to introduce a distinction between adjectives of behavior, like *discreto* ('discreet'), which under certain circumstances can be coerced to appear with ESTAR, and relational adjectives like *vegetariano* ('vegetarian'), which cannot be easily coerced. In order to try to explain the different behavior of these two types of IL adjectives, it has also been shown, by applying a large set of aspectual tests, that *discreto*-type adjectives, unlike the rest of the adjectives, express a clear dynamic sense.

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